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BEALE'S CALISTHENICS FOR YOUNG FOLKS

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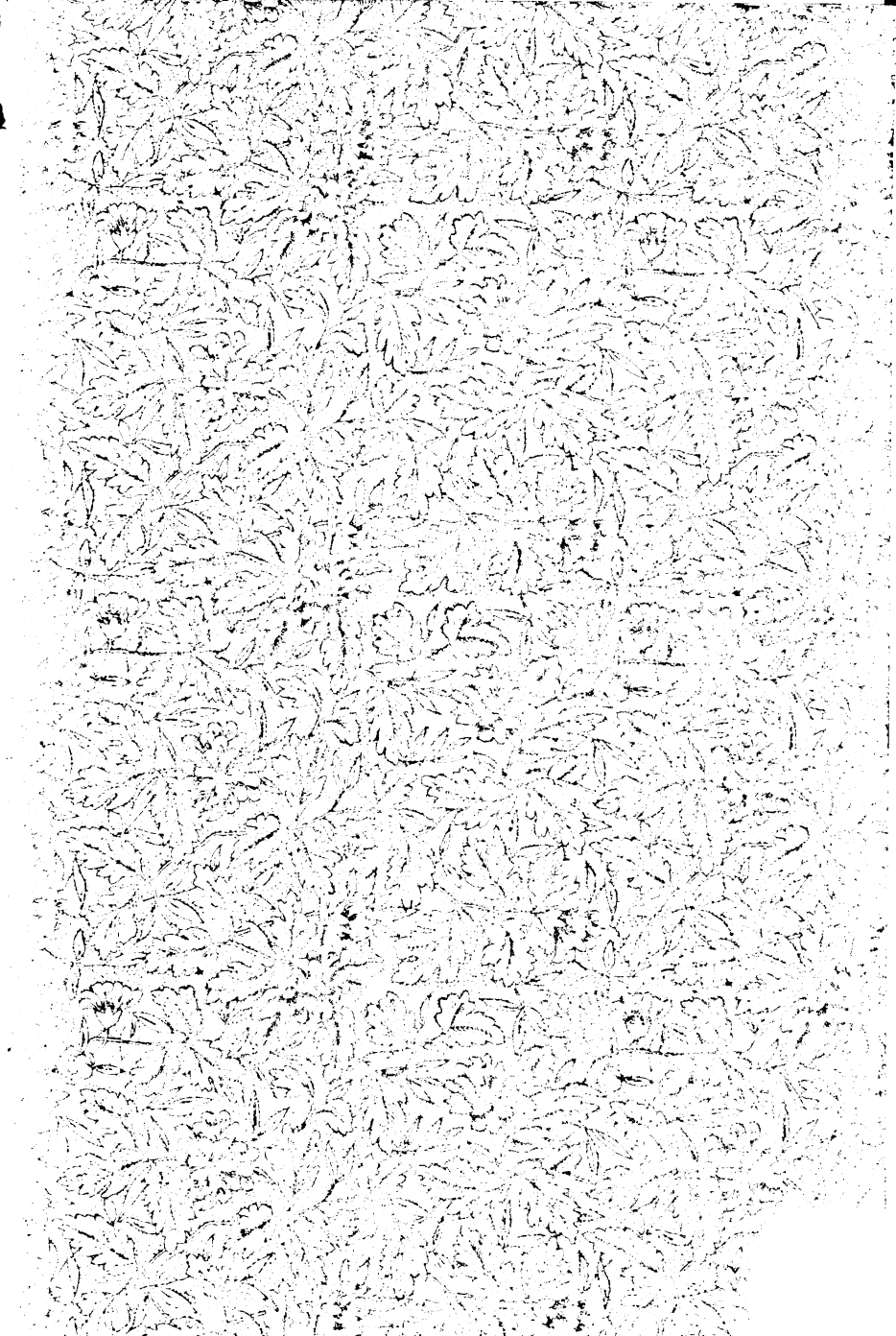

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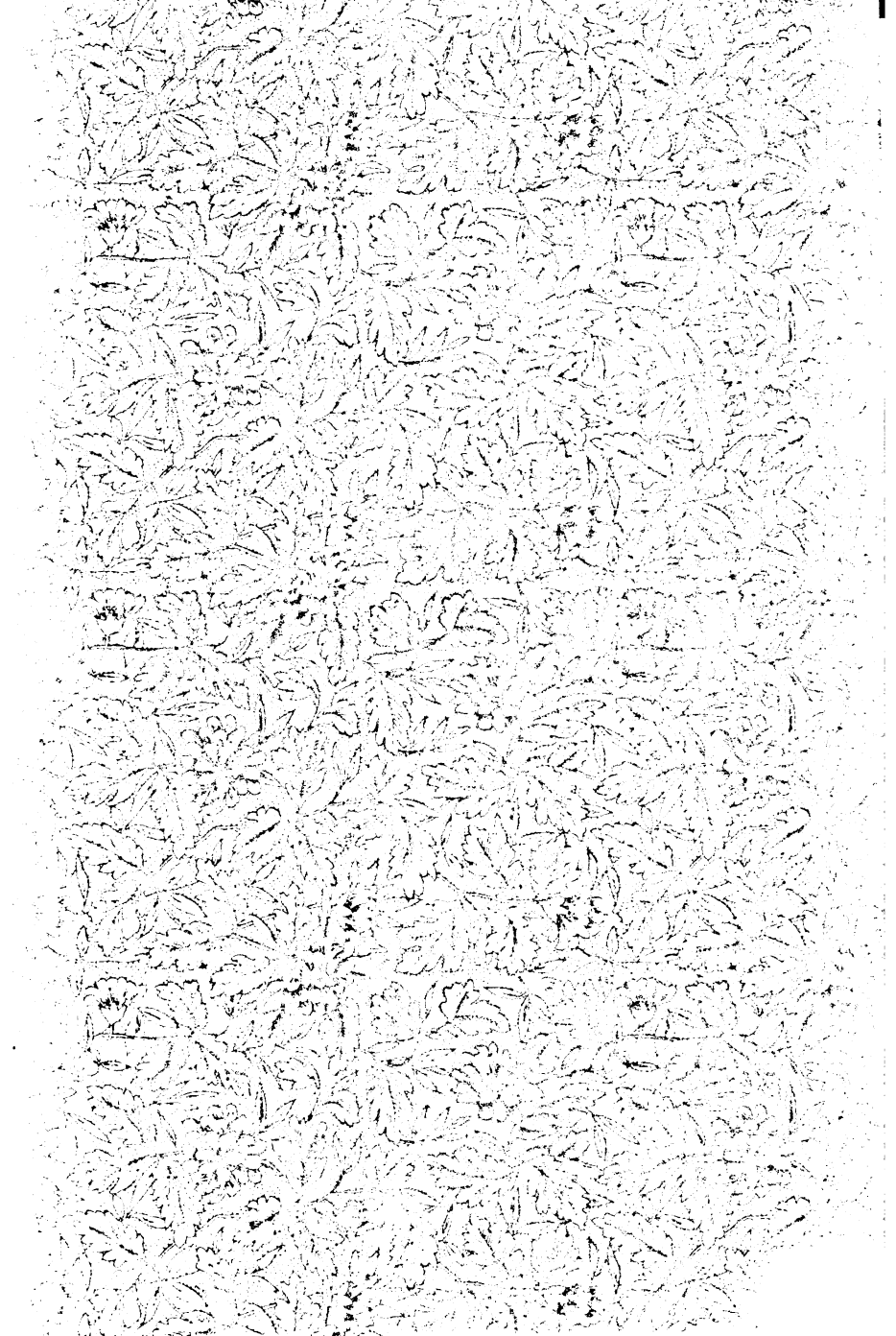

CALISTHENICS

AND

LIGHT GYMNASTICS

FOR HOME AND SCHOOL.

BY

ALFRED M. A. BEALE.

PROFUSELY ILLUSTRATED

BY

S. M. SPEDON.

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PREFACE.

THIS little work is in nowise intended to be a technical treatise, but is simply an endeavor to present in a plain, easily-understood manner those exercises which are particularly suitable for children either in classes at school, or at home individually.

The exercises will be found arranged in such manner as to follow each other as they become more difficult, beginning with the simple movements of the limbs and body, without apparatus, and ending with the most difficult and at the same time most useful of accomplishments—swimming.

Of late years, much has been done to render calisthenic exercises not alone useful, but also beautiful, and the result has been the production of "Broom Drills," "Handkerchief Drills," "Fancy Marches," etc., performed by young ladies or children, with the greatest success. It has been the author's endeavor to present these exercises in the most concise manner, to the end that they may be taught and acquired without confusion or misunderstanding on the part of teacher or pupil.

As a work of this kind would be useless without drawings illustrating the various movements, and still

more useless if the illustrations were imperfect, it became necessary to resort to instantaneous photography. By this means each exercise was accurately photographed from the living subject. The excellence of the wood-cuts, which were drawn from the photographs, is due to the skill of Mr. S. M. Spedon, to whom the writer is much indebted for his hearty co-operation in a somewhat difficult task.

Although conscious that all that can be done has been done to make this work both instructive and interesting, it is with trepidation submitted to those awful little critics, the children.

ALFRED M. A. BEALE.

NEW YORK, 1888.

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BEALE'S CALISTHENICS.

PART I.

THE PRACTICE OF THE ELEMENTARY EXERCISES.

CALISTHENIC exercises being designed to promote grace, beauty, and strength, it is of primary importance to acquire thoroughly the art of carrying oneself properly; of being able to sit with the body erect and of standing with the figure perfectly balanced, which is the case only when the centre of gravity is where nature designed it to be—directly over the heels.

To gain this much-to-be-desired end, the pupil will practice the following exercises, not dropping them because the results are not immediately apparent; as in the case of an incorrect habit of posture, some time must necessarily elapse before the muscles resume their normal conditions. The slight exercise of perseverance required will be well rewarded by the consciousness of personal grace, the condition attained verifying the

physical aspect of the dictum that "man is the noblest work of God."

Fig. 1.

First Position.

This is the fundamental position, as all drill exercises begin with it. The heels are together, the feet turned outward, forming a right angle between them; the knees straight; the arms well down and close to the body; the fingers close to each other, with the thumbs in front; the head straight, with the base of the skull directly over the heels; and the shoulders set backward, without exercising any strain to do so, however, and the eyes straight.

The word of command is—ATTENTION! (Fig. 1.)

Walking.

The length of step for girls is usually twice the length of the foot (Fig. 2). For boys and men, three times, and often four times the length of the foot is used. This should be practiced by placing the feet alternately forward and backward, resuming afterward their original position. In walking, care should be taken not to lift the heels too high; to prevent this, recourse is had to the "goose step," where the pupil stands upon one

foot and places the other backward and forward, but always keeping the sole of the foot level with the ground. A good walker will throw no mud upward with the heels, while those who walk improperly will have their clothes quickly ruined in bad weather.

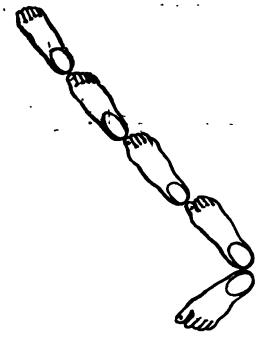

Fig. 2.

This exercise should be executed at the command: RIGHT (or left) FOOT: FRONT! RIGHT (or left) FOOT: REAR! The first two words of the command extending to the colon (:) are to prepare the pupil; the motion to front or rear begins only at the word FRONT (or *Rear*), continued by the teacher counting ONE, TWO; ONE, TWO, evenly, until HALT is called, when the pupil will place the heels together and resume position, as in Fig. 1.

Movements of the Head

Should always be executed in slow time; the body should remain erect and immovable. At the command HEAD RIGHT: TURN, the head must be slowly turned, without inclination, until the chin is well over the shoulder.

Bending or inclining the Head

Is too simple to require explanation; care, however, should be taken not to frown when the eyes are turned

upward with the head. The eyes should always look out of the head straight.

Movements of the Arms.

There are five principal movements of the arms.

Fig. 3.

Fig. 4.

The first movement (Fig. 3) is the upward bend. The arm from the shoulder to the elbow is kept rigidly against the body, while the forearm is raised upward, the hands bent forward at the wrists until the tips of the fingers touch the armpits.

The second movement (Fig. 4) is the upward stretch, and is a continuation of the first movement. The arms should be kept as close as possible to the head.

The third movement (Fig. 5) is the sideway stretch. The arms are fully stretched, both hands being the same height from the floor.

Fig. 5.

The fourth movement (Fig. 6) is one in which the arms are stretched well forward, the palms of the hands facing each other.

The fifth movement (Fig. 7) is the backward stretch. The palms of the hands should face away from each

other, and the head and body be kept in an erect position.

All of these movements should begin and end with the first position—ATTENTION.

Fig. 6.

Fig. 7.

Movements of the Trunk

Are performed slowly.

The first movement (Fig. 8) is the downward bend. The trunk is gently bent at the lowest part of the spine without twisting the body or moving the head, which remains in the same relative position to the trunk.

This exercise may end when the hands are down level with the knees, or be continued until the face is opposite the knees and the tips of the fingers touch the toes (Fig. 9).

The second movement consists of the backward bend, in which the head is raised slightly upward, the hands

Fig. 8.

Fig. 9.

placed upon the hips, and the body bent backward as far as possible (Fig. 10).

The third movement is an extension of the second; to do it, the right (or left) foot must be advanced to a walking position, and the whole arm on the same side as the advanced foot raised and extended backward with the head and body (Fig. 11).

In the fourth position (Fig. 12) the body is bent well backward, with both arms stretched upward and backward.

The other exercises with the body are bending sideways (Fig. 13).

Fig. 10.

Fig. 11.

Turning the body to the right or left without moving the feet (Fig. 14).

Bending the body while turned in either direction. Bend the body both forward and backward, placing the hands upon the hips. The backward bend may be done with the heels together, but in bending forward

the right (or left) foot, according to the direction of the turn, must be placed in the rear (Fig. 15).

Balancing Positions

Are for more advanced pupils, requiring, as they do, considerable strength in the muscles of the feet; and

Fig. 12.

Fig. 13.

although they are much practiced by children destined for theatrical dancing and posturing, they are deemed inappropriate for schools, etc., unless executed with great moderation. A few seconds will suffice in executing any balancing position, as the whole weight of

the body is resting upon the toes, the muscles being exerted not alone by the weight, but also by the constant effort required to maintain an erect position. In taking the first and principal balancing position, do so from the position of ATTENTION (Fig. 1) by raising the heels slowly, keeping them together and maintaining

Fig. 14.

Fig. 15.

Fig. 16.

the erect position of the body. Make no attempt to hold the position longer than a few seconds (Fig. 16).

Raise the right (or left) knee alternately (Fig. 17).

Raise the right (or left) knee as before, and turn the knee sideways to the body (Fig. 18).

While standing upon either foot, raise the other

directly outward and upward as far as possible, at the same time throwing the body backward as a counterbalance. While in this position the pupil may turn around by gradually shifting the position of the foot; this is, however, somewhat difficult.

After this exercise resume position of ATTENTION, and raise one foot backward and upward as far as pos-

Fig. 17.

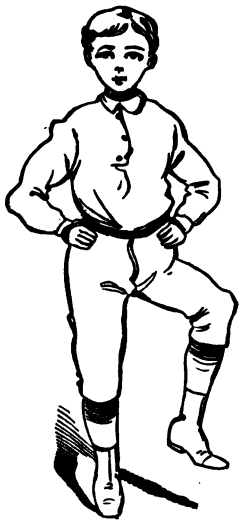

Fig. 18.

sible, at the same time bending the body forward, and turn as before; this is much easier.

Do all of these exercises several times at each lesson.

Exercises with Assistance or Resistance.

These exercises are more difficult, and the pupils must be well trained in the previous exercises before

assistance is given or resistance can be used. Fig. 19 is only to serve as an example of the manner in which this is done.

Two pupils are standing in stride position; the first has the left forearm in UPWARD BEND position, while the second, with his right arm in sideways stretch, is holding the left hand of the first. He may offer him some assistance while bringing his right arm back

Fig. 19.

to the upward bend position; or the first pupil may offer the second some resistance in executing the movement, which is shown by the dotted lines.

It is better to execute these last movements with several pupils together. By placing ten or twenty in the same position as the two boys in Fig. 19, they will go through the exercise with more steadiness.

PART II.

APPARATUS.

CALISTHENIC, or, more properly, gymnastic apparatus, include everything used for that purpose. This work being intended for children, it is necessary to describe only the following:

Dumb-Bells.

That dumb-bells are so popular, is due to the fact that they give the most exercise with the size of the apparatus reduced to exceeding small proportions. A pair of dumb-bells can be used anywhere at any time; they take up very little room, whether in use or not, and, in fact, constitute a whole gymnasium, provided the person using them knows how to do so thoroughly.

Fig. 20.

The best dumb-bell for the use of children and ladies is made of wood (Fig. 20); properly made, as they are when

purchased, they can be held either by the handle or by the ball, the latter hold being called the ball-grasp. Dumb-bells for children should be about 8½ inches in length.

Fig. 21.

Wands.

With a wand (Fig. 21) the pupil can exercise thoroughly every muscle, the power, strength, and flexibility of the muscles and joints being tested more or less as the exercises are done, with the hands grasping the wand close together or far apart.

The wand should be made of a straight piece of wood—preferably ash—three-fourths of an inch thick for children; and when held by the side, with one end on the floor, should be of sufficient length to bring the top level with the mouth of the person using it. This length is necessary, because it would be impossible to perform many of the best movements with a shorter one.

Indian Clubs.

Indian clubs (Fig. 22) afford an opportunity for the display of great strength and skill, but unless in the simplest way, are scarcely suitable for the use of children.

The best way to find the size of club suitable for any individual, is to lay the club along the arm, holding

it at the same time by the handle. The club should be of the same length as the arm. The weight of the club varies not with the size, but depends upon the material of which it is made, some woods being much heavier than others.

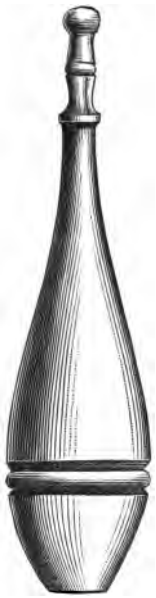

Fig. 22.

Various articles of common use, such as brooms, wooden curtain-rings of proper size, and fans, are used effectively; the latter article, however, is useful only as an adjunct to graceful movements not necessarily requiring the exercise of strength.

There is also a long list of articles invented for use in calisthenic or gymnastic exercises; as they are not pertinent to this work a description of them is omitted, the apparatus mentioned being deemed the most suitable for children and girls.

PART III.

DUMB-BELL EXERCISES.

Chest Exercises.

THE teacher will form the class as directed for the broom-drill (p. 72); the distance apart of the pupils may be less, however, but should be sufficient to prevent striking—about six feet will do.

Or the pupils may be arranged in two rows facing each other, with girls on one side and boys on the other. When the pupils are arranged in this manner the CHARGE is very effective.

The charge is performed by advancing the right foot well to the front, at the same time extending upward and outward the right arm, the left arm being extended to the rear.

The action must be spirited to produce the best results; the body being kept erect, but well forward, the extended foot and knee being in a perpendicular position.

FIRST POSITION. At the command—ATTENTION! the pupils will assume that position with the dumb-bells, held in the hands sideways (Fig. 23), the backs of the hands being to the rear, and the fingers to the front.

SECOND POSITION. At the command—SECOND POSITION! the pupils will raise the bells to the shoulders (Fig. 24), keeping them in a horizontal position; the arms from the shoulder to the elbow must be rigidly held against the side. It is well to execute the move-

Fig. 23.

Fig. 24.

ment both in slow and fast time. Always practice first with slow time, so that the weight of the dumb-bells is under perfect control, otherwise the energy of the movement by an inexperienced manipulator is apt to throw the bells against the body with too much force.

THIRD POSITION. At the command—THIRD POSITION! (Fig. 25), the pupils will raise the bells upward

the full length of the arm, at the same time turning the dumb-bells around so that the palms of the hands face to the front. The movement may be executed in the same manner, but changing the direction of the turn so that the backs of the hands are to the front—

Fig. 25.

Fig. 26.

or it may be performed without a turn. All these slight variations in a movement are of importance, though they do not appear so at first sight. The main portion of the movement exercises an entirely different set of muscles to those exercised by the turn of the arm or wrist.

FOURTH POSITION. The pupils will move the outstretched arms outward and downward until both bells are on a line and even with the shoulders (Fig. 26).

The usual fault in this—and, in fact, in nearly all exercises, consists in doing them too quickly; the arms must be brought down slowly to the position in the

Fig. 27.

Fig. 28.

figure, and not be allowed to go beyond it, or the effect with a number of pupils will be entirely destroyed.

The last four movements may be performed by a class in unison, and excellent effects produced by varying the order of the exercises. For example, suppose the teacher has twenty pupils arranged facing each other in two rows of ten pupils each. Begin by num-

bering all the pupils from one to twenty, each pupil to remember whether his or her number is odd or even. Then instruct them that while all the even numbers are performing the second movement (Fig. 24), the odd numbers are to take at the same time the position indicated in Fig. 26, by raising the arms outward and

Fig. 29.

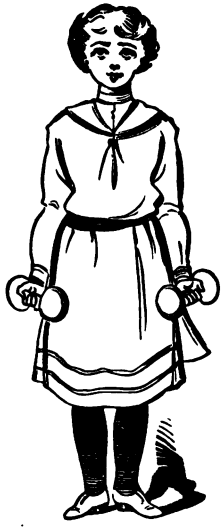

Fig. 30.

Fig. 31.

upward to a level with the shoulders. The odd numbers may then be ordered to the third position (Fig. 25), while the even numbers take the second or fourth position. In this manner the exercises are varied and the interest kept up.

FIFTH POSITION. The pupils will place the elbows against the waist, holding the bells vertically (Fig. 27).

The teacher may now count—ONE, TWO! ONE, TWO! etc., the pupils at the same time moving the elbows backward at ONE, and forward at TWO.

In executing this movement the pupils will have a tendency to let their elbows point outward when performing the backward motion. This should not be allowed, as the elbows must move backward in a straight line if the best results are to be gained.

SIXTH POSITION. The pupils taking the ball-grasp, will place the bells behind them (Fig. 28).

A number of exercises may be performed with the ball-grasp. As they consist almost entirely of a repetition of the previous exercises, a description of them is omitted.

The movement in the figure is to be performed from position of attention, by allowing the bells to slide forward in the hands until they are held by the ball instead of the handle; place them behind the back, and from that position swing them around to the front level with the shoulders, or swing them upward over the head; in fact, any movement previously learned can be executed with the ball-grasp.

SEVENTH POSITION. The teacher will frequently permit the pupils to rest. At the command—REST! the bells will be brought down to the side, with the balls in front and rear (Fig. 29), which shows the pupil with his feet in position of attention. This movement may be varied by the pupil allowing the weight of the body to rest upon one foot, slightly extending the other.

EIGHTH POSITION. The pupils will turn the elbows inward, at the same time turning the palms of the hands outward, the position assumed being plainly shown in the figure (Fig. 30).

To do this properly the bells must be held as in Fig.

Fig. 32.

Fig. 33.

29, but clear of the body, then as the teacher commands—EIGHTH POSITION: ONE! TWO! ONE! TWO! the pupils will turn the elbows in and out, at the same time turning the dumb-bells.

NINTH POSITION. At this command the pupil will take the position indicated in the drawing (Fig. 31),

in which the bell in the left hand is held horizontally against the breast, the bell in the right hand a little higher than the shoulder, and touching the bell in the left hand. The teacher will now say--ONE! the pupil moving the right arm downward and backward until as far behind the back of the hips as possible, and resume the position in the figure. TWO! the pupil will extend the right hand and arm outward and level with the shoulder, resuming position as before. THREE! the pupil will raise the right arm upward, stretching it to its full height (Fig. 32).

At the command—RIGHT! the pupil will place the right hand upon the breast, same as before with the left, and execute the same movements with the left hand. The teacher using the same commands, indicating the hand to be used at the beginning of the exercise by the command—RIGHT (or LEFT)!

Shoulder Exercises.

The teacher will command—FIRST POSITION! The pupil will take position as in the figure (Fig. 33), with the upper arms extended horizontally, the elbows bent, the forearms turned inward toward the body, the wrist also bent, and the palms of the hands turned upward, with the bells well under the armpits. At the word—ONE! the pupil will extend the arms horizontally, and hold the bells with the backs of the hands upward. At the word—TWO! the pupil will bring the arms down

quickly to the side. And at the word—THREE! will again place the bells under the arms, as at first.

SECOND POSITION. The pupil will hold the bells upon the breast vertically (Fig. 34); at—ONE! will extend the arms forward to the front, resume position,

Fig. 34.

Fig. 35.

and at—TWO! extend both arms outward and sideways to the body. At—THREE! keeping the bells the same height from the floor as the shoulder, the pupil will bend the arms backward as far as possible. At—POSITION! resume position.

Elbow Exercises.

The teacher will command—POSITION! and the pupil will take position as in Fig. 35, with the backs of

the hands turned toward the face and the elbows well up.

This position is somewhat difficult to maintain, as it strains every muscle of the arms, wrists, and fingers, and is therefore a very good exercise. The three following movements may be performed several times

Fig. 36.

Fig. 37.

each, but the pupil should do them thoroughly, and not mind the little aches which will at first result.

The first movement is made toward the rear, inclining downward at an angle of about forty-five degrees, which will bring the right elbow down near the waist, the forearm keeping the same bend.

Second movement. Move the arm directly backward as far as possible

Third movement. Move the arm upward as far as possible.

In these exercises always maintain the bend in the arm, as it is holding the position which exercises the elbows.

Fig. 38.

Fig. 39.

Execute the exercises either with one arm at a time, or both together.

Arm and Hand Exercise.

The pupil will at the command—POSITION! take the position indicated (Fig. 36), thumbs to the front, the bells pointing front and rear.

First movement. Move both arms outward and upward until level with the shoulder (Fig. 37).

Perform the movement slowly, as though the dumbbells were of considerable weight. In all movements of this description the muscles are much more exercised by exerting them slowly.

Fig. 40.

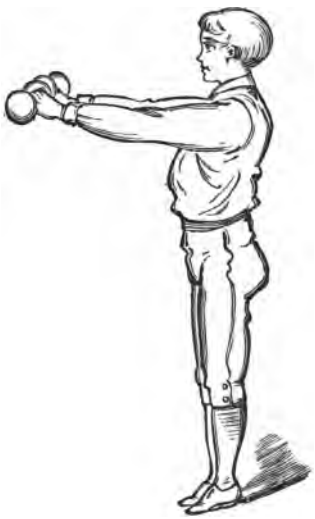

Fig. 41.

Second movement. Carry the arms outward and upward as far as they will go, keeping the bells always pointing in the same direction (Fig. 38).

This movement will bring the bells well over the head, as in the drawing; some practice will be necessary before it can be well done.

Third movement. Move the arms forward and upward to the level of the shoulders (Fig. 39), keeping the arms well stretched and level, otherwise the line of pupils will present an uneven appearance.

Fourth movement. Continue former movement until the arms are well above the head (Fig. 40).

Fig. 42.

Fig. 43.

Fifth movement. Carry the arms from their position in front of and level with the shoulders, outward and backward as far as possible.

Sixth movement (Fig. 41). Hold the bells in front and horizontally; swing the arms around behind the back.

Seventh movement. Stand as in the first position;

hold the right arm in its place, and swing the left arm outward and upward, bending the body sideways at the same time (Fig. 42). Do this exercise alternately with both arms.

Eighth movement. Hold the bells with the ball-grasp

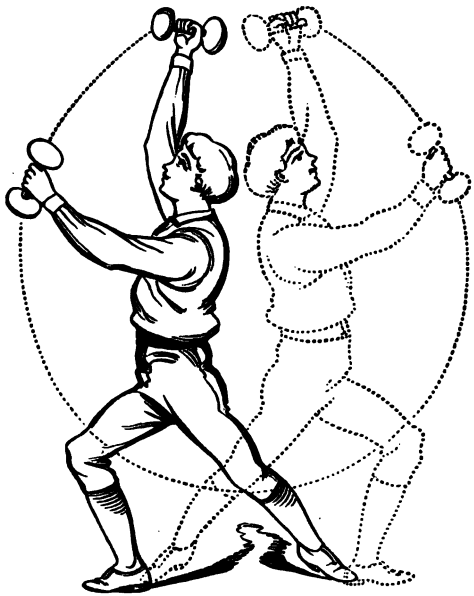

Fig. 44.

directly in front and touching each other (Fig. 43); bend the body until the bells touch the floor.

Ninth movement. From the position in Fig. 43 advance the dumb-bells along the floor as far as possible, and return the body to an upright position by springing backward. In doing so draw the arms quickly back to the sides so that the bells are near the hips.

Tenth movement. Stand with one foot advanced, raise the arm on the same side as the advanced foot, throw the other arm to the rear. Change the position quickly by stepping backward with the advanced foot and placing it in the rear, at the same time changing

Fig. 45.

the positions of the arms. Repeat the exercise with the other foot advanced.

Knee Exercise.

FIRST POSITION. Place the feet well apart, one in front and one in the rear. Turn the body well around,

bending the knee at the same time until in the position in the figure (Fig. 44); then swing back into the position represented by the dotted line.

SECOND POSITION. Place the feet apart sideways; bend downward, taking position with one arm well extended upward and straight, the other arm straight, the hand on the bell which rests on the floor (Fig. 45).

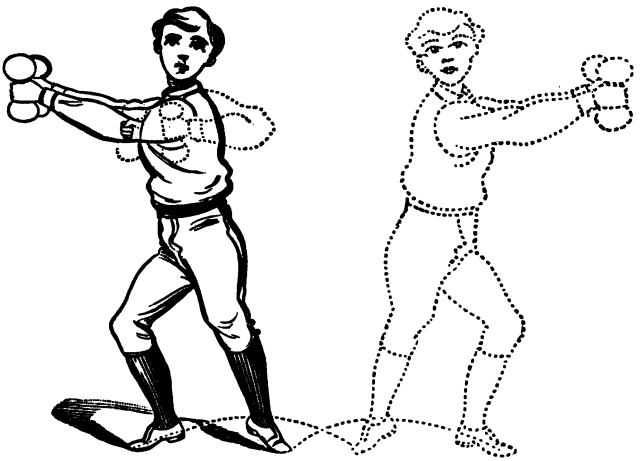

Fig. 46.

The right knee is now bent, the left leg being straight. Exercise by reversing the position. In doing so swing the left arm over until the bell touches the floor, at the same time swinging the right arm upward. The movement of the arms must be made while the body is changing its position.

THIRD POSITION. From the position of attention, drop the body quickly to a sitting posture, at the same

time raising the heels and allowing the bells to touch the floor. In rising to position of attention do so as slowly as possible.

These exercises should be repeated several times.

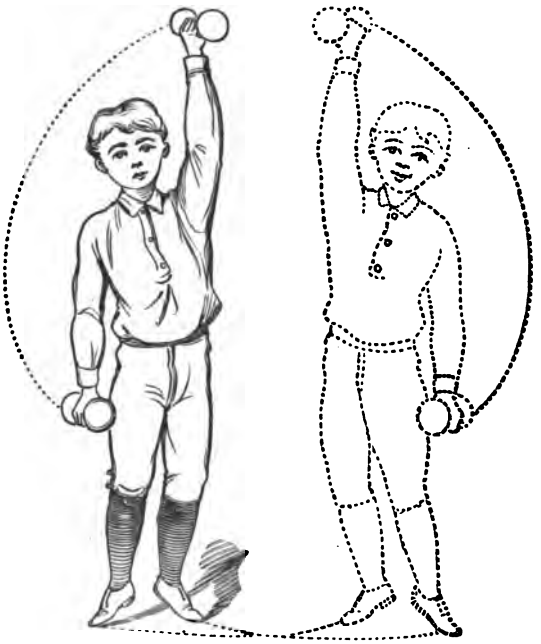

Fig. 47.

Exercises of the Leg and Foot.

The first movement is executed by leaping from right to left, as in the drawing. In making the movement draw the arms quickly back, placing the bells against the breast. In jumping turn the body half around, and again extend the arms fully (Fig. 46). A reference to

the figure will render the movement easy to understand.

The second movement (Fig. 47) consists of a swinging movement from side to side, and is most effective when executed by a number of pupils in unison. Raise on the right foot, the left arm up, right arm down; swing over to the left, at the same time dropping the left arm to the side, and raising the right arm. As soon as the left foot reaches the floor, swing back again with the right foot, precisely as was done with the left, and reverse the position of the arms.

PART IV.

WAND EXERCISES.

The wand exercises are to a large extent exactly similar to those described in the article on the Broom Drill (p. 71). Wands, however, afford a larger variety

Fig. 48.

of exercises, for the reason that they are alike at both ends; whereas the broom interferes with many movements which can be executed with the wand.

In the following series of exercises, those which are

similar to the broom drill exercises are placed in their order, and the reader is referred to the paragraph describing the same exercise in the broom drill.

The pupil will execute the movement commanded as the last word of the command is delivered by the

Fig. 49.

teacher, and not before; this will insure unity of action, and is the invariable rule.

Suppose the command ORDER ARMS is given, the pupils will execute the movement commanded only at the word ARMS. The word ORDER *indicates* the position to be taken; the second word, ARMS, is the command to take it.

FIRST POSITION. Is the same as Order Arms (p. 73);

the end of the wand rests upon the floor. From this position the following movements may be made.

First movement. Grasp the wand with both hands held apart as in the drawing (Fig. 48).

For the sake of effect in giving an exhibition of these exercises the teacher may order the pupils to raise the

Fig. 50.

right arm upward and lower the left by commanding RIGHT! which will throw the wand into an oblique instead of a horizontal position. The command LEFT! will indicate that the left arm is to be raised and the right lowered. The pupils must not bend the elbows during this exercise.

Second movement. Raise the arms upward and outward (Fig. 49), hold the wand level with the shoulders.

Third movement. Draw the hands in toward the body, at the same time elevating the elbows (Fig. 50).

As in the previous exercise this movement may be varied by lowering the right or left arm as commanded.

Fourth movement. Lower the wand to the waist, turn

Fig. 51.

the body around to the right without moving the feet, keep the head straight, and throw the left arm around behind the back, the right arm crossing the front of the body (Fig. 51), as the teacher commands right or left. Reverse the movement, being careful to maintain the same height from the floor with both ends of the wand.

Fifth movement. Bring the wand to the front of the

waist again and elevate it above the head (Fig. 52). The teacher will now command—RIGHT DOWN! the pupil will drop the right elbow to the waist, the left arm at the same time bending toward and over the head. At the command—UP! the pupil will raise the

Fig. 52.

wand again, and at the command—LEFT DOWN! will drop the left elbow same as was done with the right, the right arm being this time bent over the head.

Sixth movement. Hold the wand level with the chin, the elbows down (Fig. 53). At RIGHT, extend the right arm out sideways as far as possible and elevate the left

elbow so that the wand rests on the arm (Fig. 54). If the hands are not just the right distance apart the movement will show it at once, because when the right arm is well extended the left hand should rest against the breast. At LEFT, reverse the movement by resum-

Fig. 53.

ing position in Fig. 53; hold the position for a moment and then by extending the left arm and bending the right, the opposite position is gained, the wand meanwhile being kept in a horizontal position.

Seventh movement. Grasp the wand with the hands farther apart (Fig. 55). At RIGHT, swing upward with

the right hand as in the dotted lines of same figure. At LEFT, throw the left arm up.

Eighth movement. At RIGHT, raise the right arm and throw the wand behind the head, always maintaining the hold with the left hand (Fig. 56). At LEFT, reverse

Fig. 54.

the movement. Or, at RIGHT throw the right arm up as before, but after throwing the arm over the head continue the movement until the wand is down behind the back and in a horizontal position. Bring the wand back over the head by raising the left arm instead of the right, and again drop it to the front as in solid part of figure.

Ninth movement. Extend the left arm to the front and the right arm to the rear (Fig. 57); let the wand rest against the hip. At UP, raise the right arm so that

Fig. 55.

the wand points downward to the front at an angle of 45 degrees.

Tenth movement. This movement requires some skill, and is difficult to do while keeping the arms straight. Practice of the preliminary exercises with the arms is very necessary before any attempt is made to execute this

movement. By the practice of the elementary exercises is meant the practice of those exercises in the first part of this book which are performed without apparatus. In fact, the preliminary exercises are of the utmost im-

Fig. 56.

portance, it being as necessary to have the foundation of calisthenic exercises before the more difficult movements are attempted, as it is to have a foundation before building a house.

In executing the movement, hold the wand in front, elevate the arms, pass the wand over the head and drop it in the rear (Fig. 58).

Eleventh movement. While the wand is behind the back as at the end of the foregoing exercise, extend the

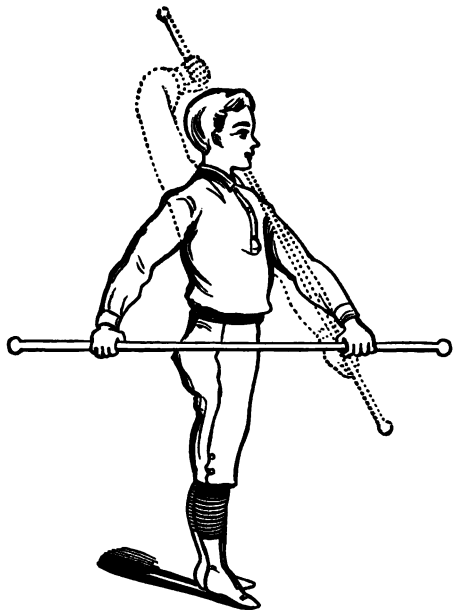

Fig. 57.

hands along the wand to the ends, at the same time turning the wrists so that when the hands are on the ends of the wand the thumbs are in front. The pupils must move both hands simultaneously and also execute the movement quickly. This movement will bring the

wand up to the back of the neck and on the shoulders (Fig. 59).

From the last position (Fig. 59) many movements may be executed by bending the body in various directions. The position of the arms will make the exercise

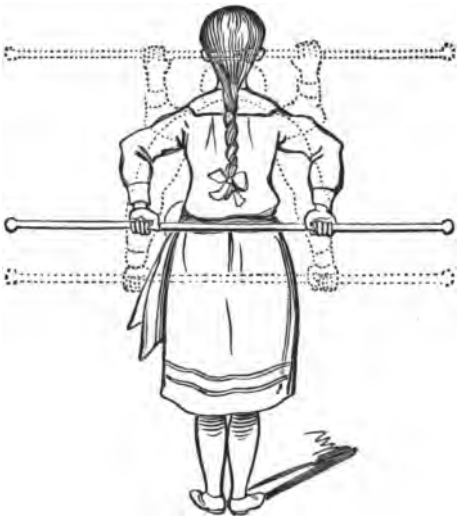

Fig 58.

of turning the body more efficacious in its result upon the muscles of the body.

The teacher may now command—BEND FORWARD! the pupils bending forward until their heads and shoulders are well down in front as in the drawing (Fig. 60).

At POSITION! the pupils will resume position with wand on the shoulders.

BEND RIGHT! At this command the pupils will bend the body over to the right as far as possible, but always keeping the arms and wand in the same relative position to the body.

BEND LEFT! The pupils will execute this movement

Fig 59.

in the same manner as BEND RIGHT. It differs only in the direction.

Again resuming POSITION, the pupils will be ready for the command—RIGHT UP! In executing this movement, hold the body as erect and immovable as possible, and raise the right arm, at the same time lowering the left arm.

At LEFT UP! the pupils will execute the same move-

ment as in RIGHT UP, by elevating the left arm and lowering the right. A pretty variation may be made by teaching the pupils to advance one foot or to step out sideways with either foot while executing RIGHT UP or LEFT UP. These variations, however, will naturally suggest themselves to the teacher, who will also find that various movements (two or more) may be combined and an original exercise be performed.

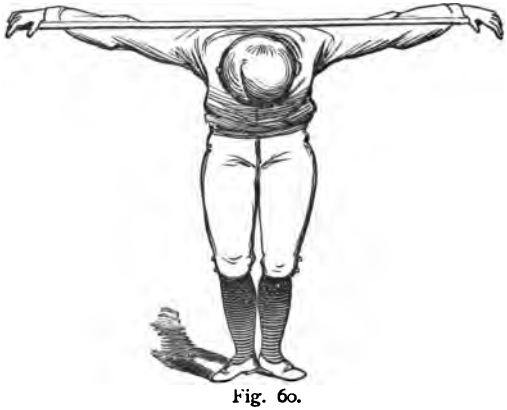

Fig. 60.

Twelfth movement. Hold the wand in front, the hands well apart as in the figure (Fig. 61). At ONE, step to the right from A to B, at the same time swinging the wand upward with the right hand as in the dotted line. At TWO, step back to A, the arms regaining original position, and continue the step onward to the left to C, the left arm at the same time swinging upward. This is a very pretty movement executed in unison and in time with music.

Combined Exercises.

These movements are executed by the pupils in pairs, each couple using either one or two wands, according to the nature of the exercise. The teacher

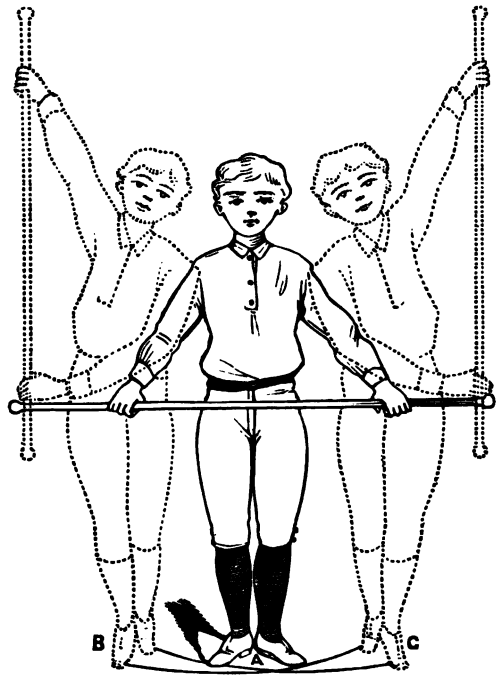

Fig. 61.

should command — COMBINED EXERCISES! At this command, the pupils will arrange themselves in couples, leaving about six feet space between each couple.

FIRST POSITION. At this command the pupils will

hold the wand as in Fig. 62; the wand should be held so that it is divided into three parts; one part between the pupils, the other two parts between the hands of each.

First movement. RIGHT—Raise the wand sideways and upward until level with the shoulders. LEFT—

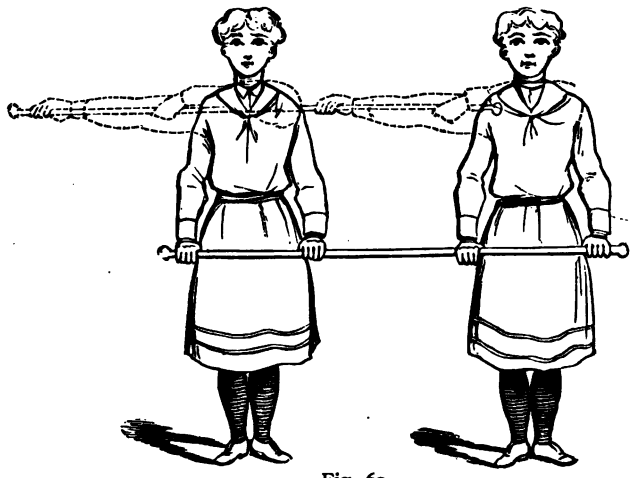

Fig. 62.

Drop the wand to position and raise sideways and upward to the level of the shoulders again.

SECOND POSITION. From the previous position take that of Fig. 50, the only difference being that there are two pupils instead of one holding the wand. The movement is also the same.

THIRD POSITION. This is the same as in Fig. 49.

FOURTH POSITION. RIGHT—The pupils will extend

their right arms and elevate their left elbows. LEFT—Reverse the movement. Fig. 54 is the same.

The foregoing exercises are all executed with the hands in the same relative position as in Fig. 62. All

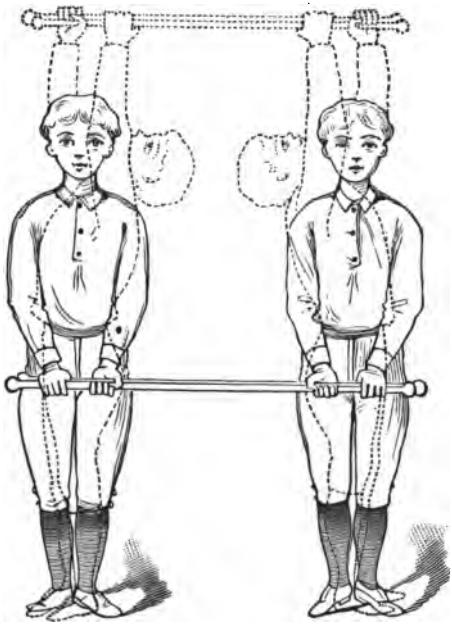

Fig. 63.

of these movements can also be executed in connection with marching.

FIFTH POSITION. The students will take the position indicated in the dotted lines (Fig. 63), in which they stand back to back, holding the wand directly over their heads. At the word of command—FRONT!

the pupils will turn on their heels and face to the front, dropping the wand the full length of the arms, as in the solid part of the figure. At the command—POSITION! they will again take the position with the wand over their heads, and at the word REAR, they will face to the rear, bringing the wand down same as in front.

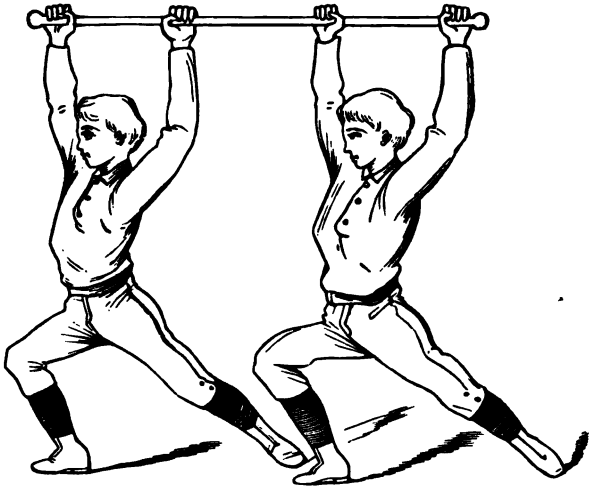

Fig. 64.

SIXTH POSITION. Is the same as in Fig. 62. At the command—RIGHT! CHARGE! the pupils will elevate their arms into a vertical position and charge toward the right (Fig. 64). At the command—LEFT! CHARGE! they will do the same toward the left.

SEVENTH POSITION. The pupils face each other, and both hold the wand with the hands far apart as in Fig. 61.

First movement. RIGHT! At this command the partners simultaneously step from point A (Fig. 61) to point C, carrying the wand out to the right as in the dotted lines, to a vertical position; they then step in the opposite direction to B, again elevate the wand to a vertical position. This swinging motion is to be

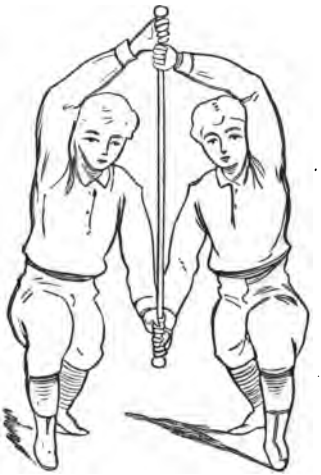

Fig. 65.

kept up at the command—RIGHT! LEFT! until HALT is called, when the pupils will rest in the position they began with.

Second movement. CHARGE! the pupils will charge, assuming position in Fig. 65, or they can drop on one knee at the command of the teacher.

EIGHTH POSITION. The pupils will take the posi-

tion portrayed in Fig. 66, in which they face in the same direction, and hold the wand over the head; the right hands behind the left.

At the command—RIGHT! the wand is brought

Fig. 66.

down on the right shoulder as in the dotted lines. At LEFT! the wand is brought down on left shoulder in the same manner.

NINTH POSITION. At this command the pupils will take one wand each instead of one wand to each pair,

as before, and will take position as in Fig. 67 ; the pupils face each other, standing a wand's length apart, and holding the end of a wand in each hand with the arms extended.

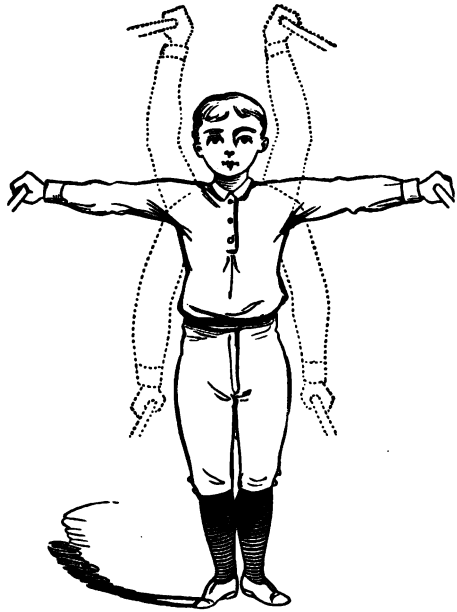

Fig. 67.

First movement. Both pupils will bring their arms down to their sides.

Second movement. Both pupils will raise the arms outward and upward until directly over the head, as shown in the dotted lines.

Third movement. Each pupil will raise the right

arm and lower the left, then raise the left and lower the right; continue the alternating movements until HALT is called.

TENTH POSITION. The pupils will hold the wands to their sides, and will face each other as in Fig. 68.

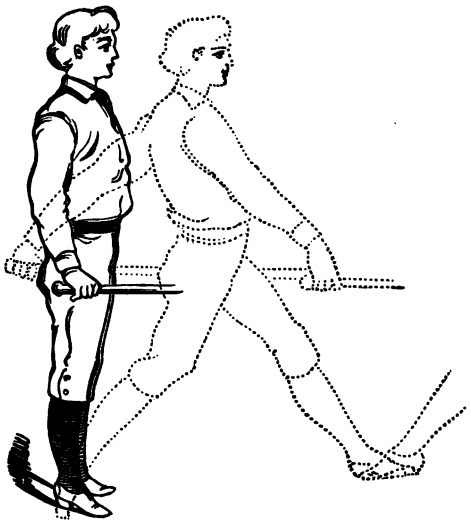

Fig. 68.

First movement. Both pupils will step forward with the left foot, at the same time throwing their right hands forward and their left hands backward, as in the dotted lines of the figure. The right foot of each pupil will now be exactly midway between them. Change the movement by returning the extended feet to their position as in solid part of the figure, and then advance

the right foot, throwing the left hand to the front and the right hand to the rear.

Second movement. The pupils will raise the wands

Fig. 69.

from A and B outward and upward until level with the shoulder, as at C and D, and then by bending the elbows and wrists bring them under the armpits (Fig. 69).

PART V.

INDIAN CLUB EXERCISES.

As in all exercises the first command of the teacher will be ATTENTION (Fig. 70). The heels are placed to-

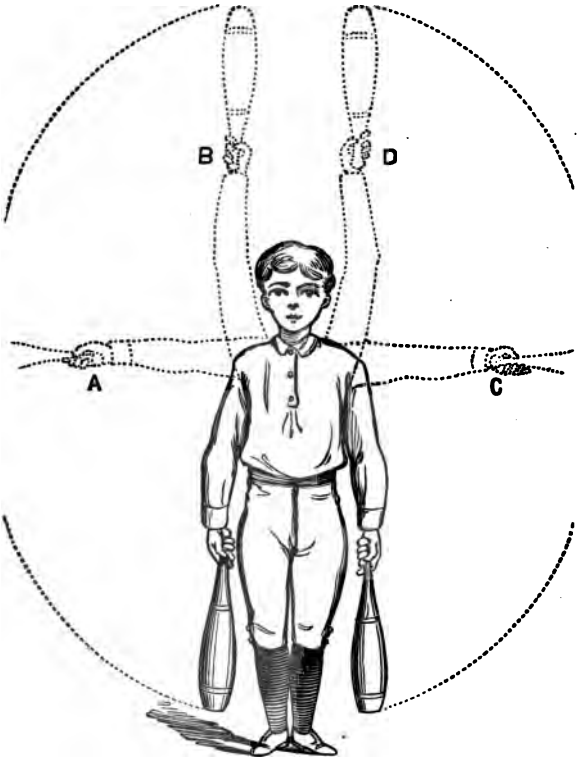

Fig. 70.

gether, and the arms stretched downward at the sides, the thumbs outward. The clubs should hang without touching the legs.

The SECOND POSITION is indicated by dotted lines. The clubs being raised outward and upward to A and C until level with the shoulders, as in the figure.

THIRD POSITION. Continue the upward movement of the arms to B and D until the clubs are held vertically with the arms stretched upward fully, and as close to the head as possible.

Fig. 71.

FOURTH POSITION (Fig. 71). The pupil will hold the clubs vertically with the hands directly in front of and level with the shoulders, as in the solid portion of the figure.

FIFTH POSITION. Swing the arms outward and backward until in line with the shoulders, as in the dotted portion of figure.

SIXTH POSITION. Continue the last movement until the arms are as far backward as they can go, still maintaining the clubs in an upright position.

SEVENTH POSITION (Fig. 72). The pupil will hold the clubs vertically in front with the elbows at the sides. At the command—SWING! RIGHT! straighten

Fig. 72.

the right arm outward to the front, at the same time allowing the club to fall outward; swing the club from front to rear downward and from rear to front upward. At the command—SWING! LEFT! resume position with the right arm and hand, and perform the same movement with the left arm as was previously executed with the right. At the command—SWING! BOTH!

swing the club in right hand with and in the same direction as the club in the left. At the command—REVERSE! RIGHT! reverse the swing of club in right hand; the clubs will now be swinging in opposite directions. SWING BOTH, and reverse the left, is the same

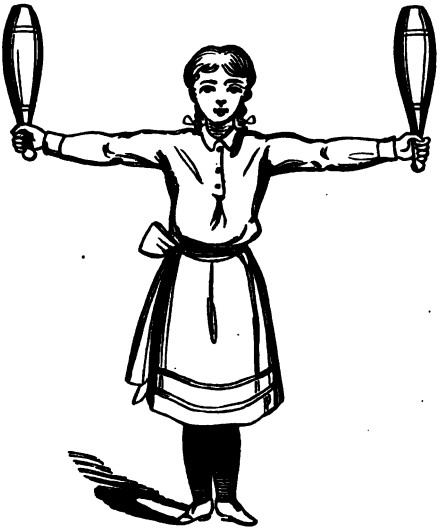

Fig. 73.

movement in the opposite direction. It is well to execute these movements in every way.

EIGHTH POSITION. Stretch the arms outward level with the shoulder, holding the clubs upright (Fig. 73).

NINTH POSITION. Drop both clubs toward the head and allow them to rest upon the arms (Fig. 74). This movement is for the purpose of exercising the wrists.

It is performed by slowly dropping the clubs upon the arms and again slowly raising them to an upright position.

TENTH POSITION. Raise both clubs again into an upright position and let them fall outward until in line

Fig. 74.

with the arms (Fig. 75). As in the previous movement, this exercise should be performed slowly, and done several times in succession.

ELEVENTH POSITION. Hold the clubs again upright as in Figure 73, turn the wrists so that the clubs fall outward and downward (Fig. 76); again raise them to an upright position.

In these exercises the arm is not moved, the purpose being to exercise the wrists and hands. All the movements made in taking the positions should be executed at least four times in succession.

There are an unlimited number of Indian-club exercises performed by professional club swingers. These

Fig. 75.

exercises consist principally of various complicated swinging movements, which require a great deal of skill, but which have no effect upon the muscles other than that produced by the exercises given in this work. These exercises constitute about all that are necessary to develop the muscles of the arms, shoulders, and body. The effect upon the muscles of the legs pro-

duced by club swinging is very small, unless the movements are executed while the feet are in motion. For instance: the swing commanded on page 66, seventh movement, may be executed at the same time as a step

Fig. 76.

is taken backward or forward, or as several steps are taken in one direction. Such exercises as these are rather violent, and scarcely suitable for children, unless with very light clubs.

PART VI.

BROOM DRILL.

Drill and Plain Marching Movements.

There is no exercise more graceful for girls, or more pleasing to onlookers, than the "Broom Drill," which has on that account become very popular. The following exercises have been arranged to conform as nearly as possible to the "Manual of Arms" as practiced by the army. Any number of pupils can be exercised at the same time.

When in rank (Fig. 77)—side by side—the pupils should be placed with the tallest at the right-hand end. When the formation is in file (Fig. 78), the shortest should always be in front.

The commands are divided into two parts; the first

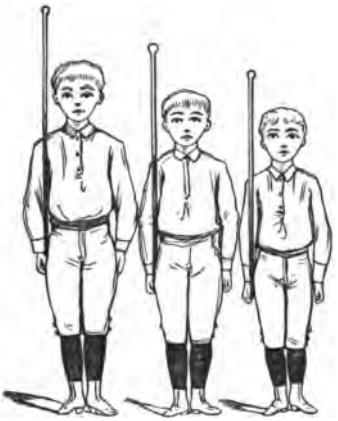

Fig. 77.

Fig. 78.

part calls the attention of the pupil, the last part is the executive. For instance—1. CARRY! 2. ARMS!

The teacher will say—CARRY! ARMS! but will pause between the words, the pupil executing the movement at the word ARMS.

1. CARRY! 2. ARMS! (Fig. 79.) The broom is held in the right hand as nearly vertical as possible, with the handle upward.

1. PRESENT! 2. ARMS! (Fig. 80). Carry the broom with the right hand in front of the centre of the body and grasp it with the left hand above the right. Hold the broom perfectly perpendicular.

1. ORDER! 2. ARMS! (Fig. 81). Grasp the broom

Fig. 79.

Fig. 80.

Fig. 81.

with the right hand, let go with the left hand. Lower the broom gently to the ground and take the position portrayed in the figure.

TO REST. (Fig. 82). Being at order arms, the teacher commands—1. IN PLACE! 2. REST!

1. TRAIL! 2. ARMS! (Fig. 83). Grasp the broom

with the right hand, the handle in front, the broom behind.

The Charge. (Fig 84.)

Place the right foot slightly in the rear of the left, raise the broom with the right hand to the hips, and

Fig. 82.

Fig. 83.

grasp it with the left hand in front. Keep the elbow close to the body and hold the end of the broom-handle level with the shoulders.

1. PORT! 2. ARMS! (Fig. 85). Throw the broom diagonally across the body. The left hand above the right, and the handle pointing over the left shoulder.

1. SECURE! 2. ARMS! (Fig. 86). Advance the

broom slightly with the right hand, turn the handle to the front with the left hand. At the same time change the position of the right hand, placing it farther up the handle, drop the handle to the front, placing the broom where joined with the handle, under the right arm.

Fig. 84.

Fig. 85.

1. REVERSE! 2. ARMS! (Fig. 87). Raise the broom vertically with the right hand, grasp it with the left hand, then change position of the right hand to the broom-end of the handle. Reverse the broom, the handle dropping to the front, the broom passing between the breast and right forearm, press the broom-handle under the arm with the left hand until the right

elbow can hold it in place against the body, pass the left hand behind the back and grasp the handle.

1. INSPECTION! 2. ARMS! (Fig. 88). Executed from the carry arms position. Toss the broom quickly with the right hand upward and opposite the centre of

Fig. 86.

Fig. 87.

the body, catch it with the left hand, and hold it in position as in the cut.

Movements of Attack and Defense.

The pupils should be placed three yards apart. The teacher will command—

1. RIGHT (or LEFT) OPEN RANKS! 2. MARCH! The

pupils face to the right except the one at the extreme left. The others march, the last of the file dropping off at every five or six steps and again facing front until all are apart the same distance. To close the rank, turn to the left or right and march toward the pupil

Fig. 88.

Fig. 89.

who stands at the end, each turning again to front as they are halted by the one ahead.

GUARD! (Fig. 89). Carry the right foot back, the knees slightly bent, rest the body equally on both legs at the same time throw the broom into the left hand,

the point of the handle in front of, and at the height of the chin, both arms half extended.

ADVANCE! Move the left foot quickly forward, follow with the right foot the same distance (15 inches).

RETIRE! Move the right foot quickly to the rear (same distance) and follow the same with the left foot.

Fig. 90.

Fig. 91.

1. FRONT! 2. PASSADE! Advance the right foot quickly fifteen inches in front of the left, advance the left foot to its relative position in front of the right.

1. REAR! 2. PASSADE! Carry the left foot quickly fifteen inches to the rear, place the right foot in its relative position in the rear of the left.

1. RIGHT! 2. VOLT! Face to the right, turning on the ball of the left foot and carrying the right foot into position in the rear.

1. LEFT! 2. VOLT! Face to the left, turning on the ball of the left foot, at the same time carrying the right foot to its position in the rear.

Fig. 92.

Fig. 93.

1. QUARTE! 2. PARRY! (Fig. 90). Hold the broom in front of the left shoulder with the right hand, handle upward, the fingers of the left hand on the handle, the left elbow touching the right wrist.

1. SECONDE! 2. PARRY! (Fig. 91). Move the point of the broom-handle quickly to the left, describing a

semi-circle from left to right, the left elbow in front of the body, the flat of the broom under the right forearm, the right elbow two or three inches higher than the right shoulder.

1. PRIME! 2. PARRY! (Fig. 92). Carry the broom to the left, covering the left shoulder, the handle downward, the left forearm behind the handle, the right arm in front of and above the eyes.

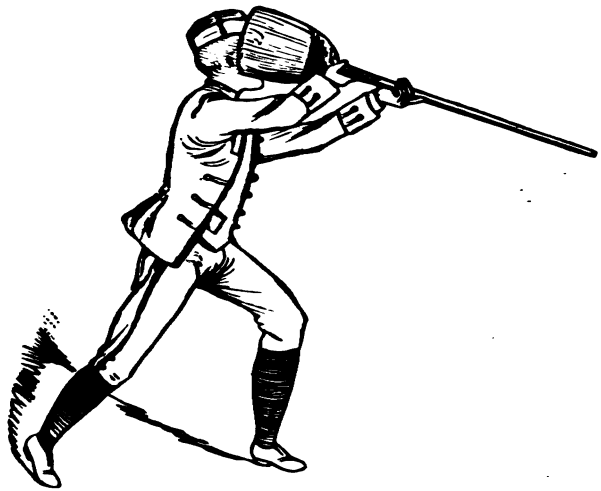

Fig. 94.

Thrusts.

TO THRUST IN TIERCE. (Fig. 93). Straighten the right leg, extend both arms, keeping point of handle at height of the breast, broom at right side of head.

THRUST IN QUARTE. The same as tierce, but with the broom on the left side of the head.

Lunges.

The lunges are the same as the thrusts except that the left foot is extended farther in front (Fig. 94).

Fig. 95.

Fig. 96.

BROOM TO FRONT. (Fig. 95).—ONE! Raise the handle nearly straight up and down, drop it into the hollow of the right shoulder.—TWO! Strike quickly by pushing the broom forward, the handle always resting on the right shoulder.

1. RIGHT SHORT! 2. THRUST! (Fig. 96).—ONE! Hold the broom with the right hand to the rear, left

hand by the right breast, the point of the handle opposite the centre of the body.—TWO! Thrust forward.

1. HIGH PRIME! 2. PARRY! (Fig. 97). Raise the broom with both hands in front of and higher than the head. Hold the handle firmly with the right hand, the

Fig. 97.

broom being to the right, turn the knuckles of the left hand to the front, and let other end of broom-handle rest on the thumb and forefinger.

TO GUARD WHEN KNEELING. (Fig. 98). Bring the toe of the left foot square in front, plant the right foot to the rear, kneel on the right knee, bending the left,

hold the broom at an angle of 45 degrees, pointing directly to the front, the right hand pressed firmly against

Fig. 98.

the side, the left hand holding the point of handle upward.

NOTE.—The same drill may be performed by using oars instead of brooms, but the oars must be made somewhat shorter than is usual.

PART VII.

PLAIN MARCHING.*

Arrangement of Twenty Pupils.

At the command—FALL IN! the pupils will form in rank, the tallest to the right, gradually decreasing the height of each until the shortest is at the extreme left. The teacher will now call the numbers, beginning at the right, each pupil answering as number is called.

At the command—EYES RIGHT! DRESS! the pupils will glance to the right and so place themselves that a straight line is formed between the two ends.

In Two Ranks.

If it is desired to form the pupils into two ranks, which would make ten files of two pupils each, the teacher will command—IN TWO RANKS! At this command the 1st, 3d, 5th, etc., pupils—in fact all those bearing the odd numbers, will step backward one pace with the left foot, bringing the right foot to attention position, and assume attention. The pupils bearing even numbers remain in their places.

The teacher will now command—TO THE RIGHT!

* All marches may be performed either with or without canes, brooms, or wands. The wand is preferable.

CLOSE! Number one will stay in position, all the pupils will step sideways until in close rank and file. Number two will now be directly in front of number one, with number four on his left side. The teacher may now command — COMPANY NUMBER TWO TO THE REAR! Company number two will then step back one pace and assume position. This is called open rank.

1. EYES TO THE RIGHT! 2. DRESS! At this command the pupils will align themselves correctly.

To March in Line.

Place the pupils in one rank, the teacher in front of the centre (Fig. 99) facing the pupils. At the command—1. QUICK! 2. MARCH! the pupils will step off

Fig. 99.

with the right foot and with animation. March the length of the hall, the teacher meanwhile stepping off sideways out of the way of the pupils. At the command—HALT! the pupils will stop and assume attention. The teacher will now command — 1. RIGHT! 2. TURN! At this command the pupils place the hollows of their right feet against their left heels, turn to the right on their heels, place the heels together again,

and at the word MARCH! will step off as before, this time, however, they will be marching in file (Fig. 100).

Fig. 100.

The teacher will now command—1. RIGHT! 2. TURN! When the first pupil reaches the side of the hall, and when the centre of the file reaches a point half-way down the hall, the teacher will command as follows:

1st.—HALT!

2d—1. RIGHT! 2. TURN!

3d—ATTENTION!

4th—1. FOURS LEFT! 2. WHEEL!

At this last command the pupils will wheel to the left.

To Wheel.

The pupils having been previously numbered from one to twenty, the latter number being generally sufficient, the teacher will instruct them that in the case of FOURS RIGHT! WHEEL! the 1st, 5th, 9th, 13th, and 17th pupils, called pivots, will remain in their places, turning around to the right slowly, while the three pupils on the left of each pivot will march around them until all are at right angles to their former position. The pupils will now be four abreast and each company must keep the same relative distance in marching.

If the command—1. FOURS LEFT! 2. WHEEL! is given, the 4th, 8th, 12th, 16th, and 20th pupils will be the pivots around whom the pupils on their right will march.

The diagram (Fig. 101) will plainly show how this is done, and a little practice will enable the pupils to wheel in either direction with an even, unbroken line.

The pupils being now in five companies of four pupils they will, at the command—1. QUICK! 2. MARCH! step off as before, keeping close together, shoulder to shoulder, each company maintaining its distance from the one in front. The teacher may now order—RIGHT (or LEFT) WHEEL! When the end of the hall is reached, march the pupils down whole length of hall, RIGHT (or LEFT) WHEEL again to centre of hall, then HALT! At the word HALT! all will stop at once, each company being careful not to get any closer to the company ahead than they were at the start. The command—1. RIGHT! 2. WHEEL! may now be given and each company will move around the pivots 1, 5, 9, etc., as before, until all are again in line the same as at first. Should the companies have misjudged their distances, they must, on finding want of room, open out. If, on the contrary, there are open spaces, the pupils must close up until they are shoulder to shoulder.

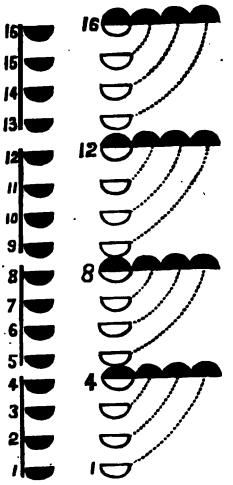

Fig. 101.

The foregoing march is plain and easy, being designed for children. The teacher can, of course, vary the

order of commands at will, and produce some very effective results. The main thing is to thoroughly instruct the pivots 1, 5, 9, etc., and 4, 8, 12, in their duty, which is to turn slowly around with the command, but not moving from the ground occupied until the word MARCH! The odd numbers always act as the pivots in right-wheel movements and the even numbers always act as pivots in left-wheel movements.

The commands given in the foregoing march are arranged below consecutively for convenience. If they are implicitly followed, no confusion can result.

Commands for Plain Marching.

1—FALL IN!
2—EYES RIGHT!
3—DRESS!
4—QUICK MARCH!
5—HALT!
6—RIGHT TURN!
7—RIGHT TURN!
8—HALT!
9—RIGHT TURN!
10—HALT!
11—FOURS! LEFT WHEEL!
12—QUICK MARCH!
13—RIGHT WHEEL!
14—LEFT WHEEL!
15—HALT!
16—RIGHT WHEEL!
17—HALT!

These commands depend, of course, upon the size and shape of the hall. When commanding RIGHT or LEFT WHEEL! the teacher should command thus—COMPANY ONE, RIGHT (or LEFT) WHEEL! and when company one has wheeled and ready to march forward again, the teacher should command—COMPANY TWO, RIGHT (or LEFT) WHEEL! giving the command at the instant company two reaches the same spot where company one was wheeled, and so on through all the companies, each company wheeling on the same ground as the previous company occupied during the same evolution.

PART VIII.

FANCY MARCHING.

The following diagrams with descriptions will enable the teacher to exercise the pupils in all the most popular and even difficult movements:

Fig. 102—A, shows the pupils standing in close rank

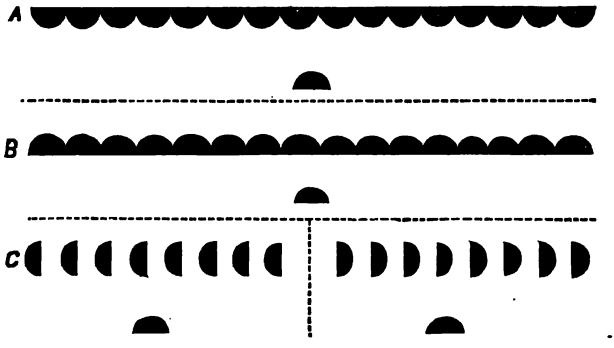

Fig. 102.

facing the teacher (the curved line represents the chest); in B, the back is turned toward the teacher; C, shows two file formations, in one the pupils have their right side, and in the other their left side turned toward the teacher.

Fig. 103—A, the pupils are placed in file, form a right angle, and while marching continue forming right angles.

In B they form an oval line. In C zigzag lines. In D serpentine lines.

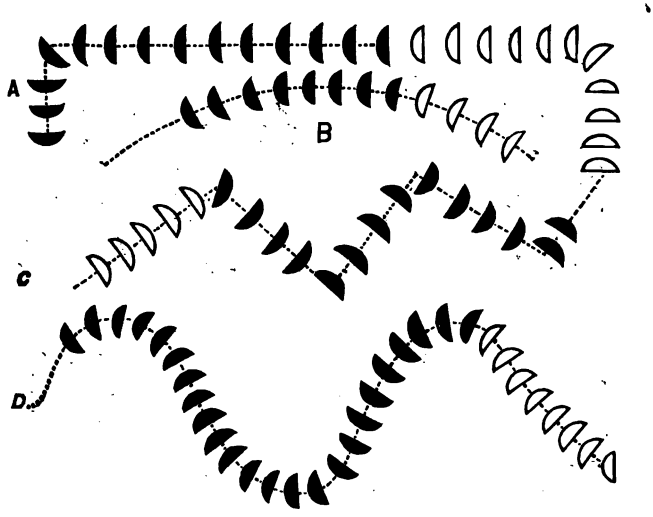

Fig. 103.

Fig. 104—A. The pupils marching in single file form a parallelogram.

In B, a triangle. In C, a circle, In D, the figure 8. In E, a snail with concentric rings.

This last is particularly effective when properly done. It is easy because the movement depends for its success

entirely upon a good leader, it being nothing else but "follow my leader," well understood by all children.

Fig. 105—The pupils marching in single file are divided into two parts, each part marching first in a right angle, then forming a half-circle, and finally a circle.

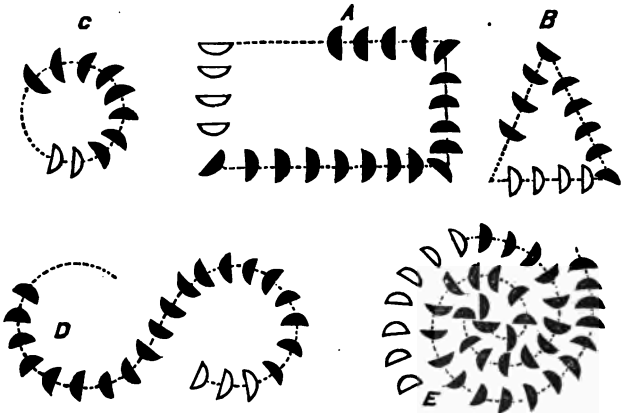

Fig. 104.

Fig. 106—The pupils being divided into two sections, march from A and A in single file, one section to the right, the other to the left, forming a parallelogram till they meet at B and B, when they march in double file to C, and continue their counter-march—*i. e.*, a march in which the pupils move in parallel lines as seen in the figure.

Fig. 107—Pupils marching in single file from A, change the rectangular figure into a triangular one. In B,

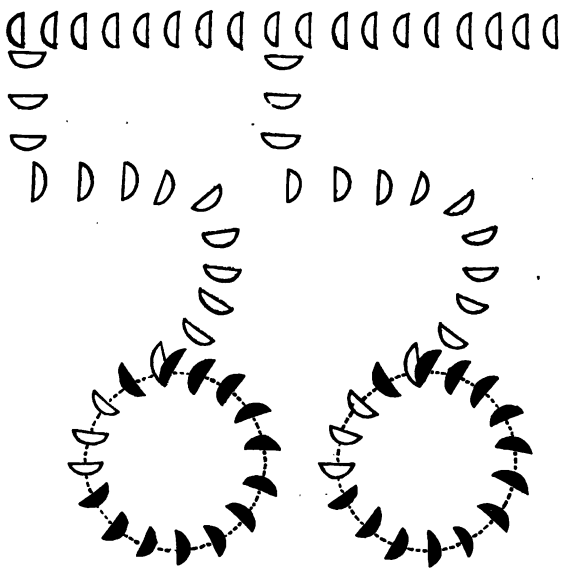

Fig. 105.

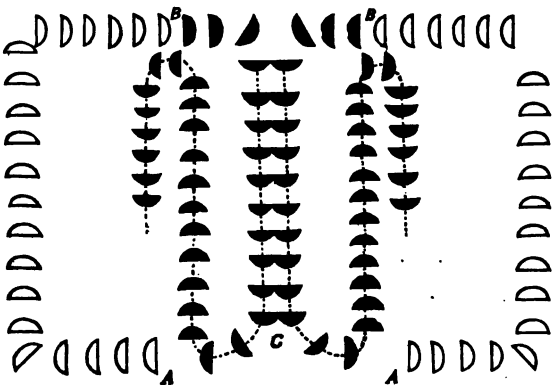

Fig. 106.

eighteen pupils are ordered to form a star with six branches, each consisting of three pupils, for which purpose the words of command would be—FALL IN! IN FILE! TELL OFF IN THREES! FORM A STAR!

Change of Single into Double File

Is shown in Fig. 108. The pupils march from A in single file to B, and turn to the right to C, where they

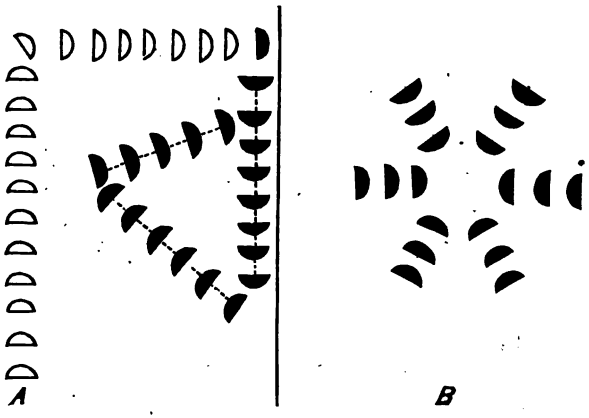

Fig. 107.

again turn to the right and proceed to form the first file, while every alternate pupil continues toward D, where the second single file parallel to the first is formed.

In Fig. 109—A, the pupils march in single file, turn to the left, form two right angles, and turning again to the left at F, advance in double file.

Telling Off.

When the teacher wishes to divide the pupils placed in rank or file, in sections of two, three, four, or more, the word of command will be—"TELL OFF!" "IN

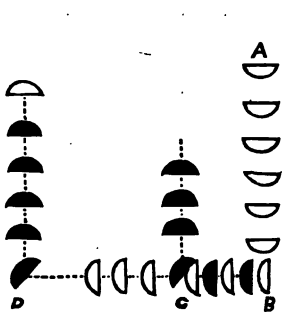

Fig. 108.

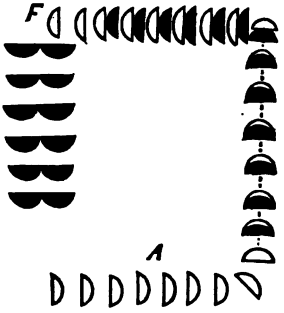

Fig. 109.

(TWOS), (THREES), (FOURS)," etc.; the first pupil on the right or left of the rank, or the first or last in file, calls out "ONE!" the second "TWO!" the third "THREE!" if they are to be divided into sections of three. The fourth calls out "ONE!" the fifth "TWO!" the sixth "THREE!" the seventh "ONE!" and so on.

In Fig. 110, the pupils being placed in rank, are

Fig. 110.

ordered to tell off in sections of three; the numbers placed before each pupil are those which each has to name.

Fig. 111.—The pupils placed in single file are to be divided into sections of four. When the word of

Fig. 111.

command, TELL OFF IN FOURS! is given, the last calls out ONE! and the others continue to call out the numbers placed in the engraving near their right.

In Fig. 112—A, the pupils have been told off in twos—the even numbers advanced two or three steps, and thus two open ranks have been formed.

B shows that eighteen pupils divided in six sections

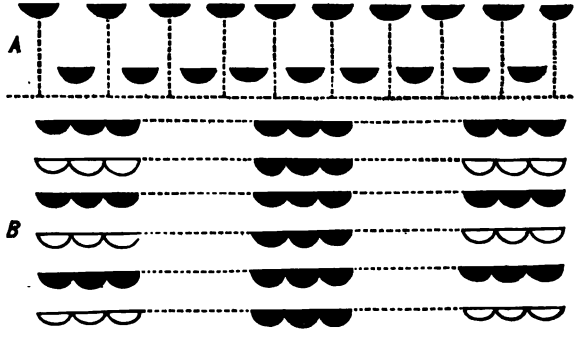

Fig. 112.

of three—half of them placed on the right, the others on the left—form, after marching sideways toward each other, a column of six ranks, each being a section of three.

Fig. 113 shows that pupils in a single file are told off. In *a*, twos. In *b* and *c*, threes. In *d* and *d'*, fours. In *e*, fives. And how they form (after advancing either to

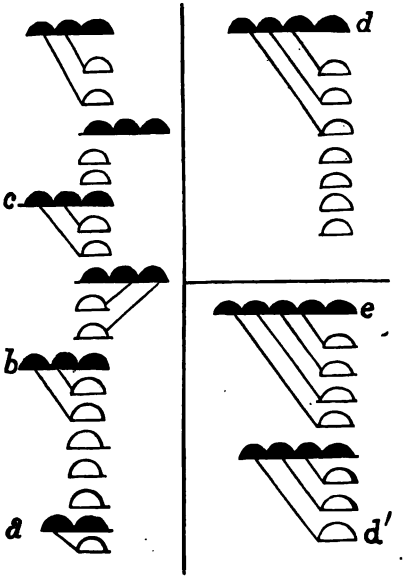

Fig. 113.

the left or right) a rank consisting of as many pupils as have been told off.

Change of Single into Triple File

Is seen in Fig. 114. The pupils march from A in single file, turn at B to the left, and form, after turning to left at C, a double file, advance to D, turn to the right and continue in single file till E, where they turn to the

right, advance in triple file, turn at F to the left, advance toward G, where they change, after having turned

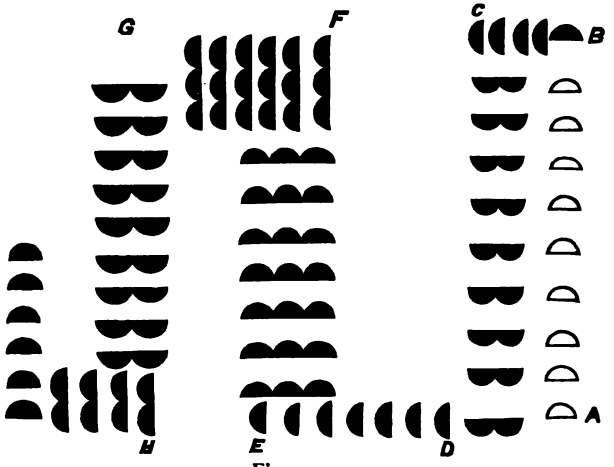

Fig. 114.

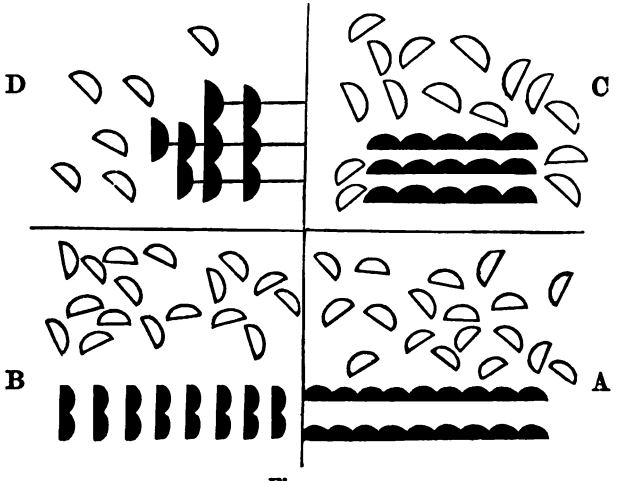

Fig. 115.

to the left into a double file; continue to march forward, turn at H, and after another turn to the right, they continue in single file.

Break Rank! or, Break File!

Is the order given when the pupils placed in rank or file are to leave off this formation. Fig. 115—A, shows the breaking of double close rank. B, of double file.

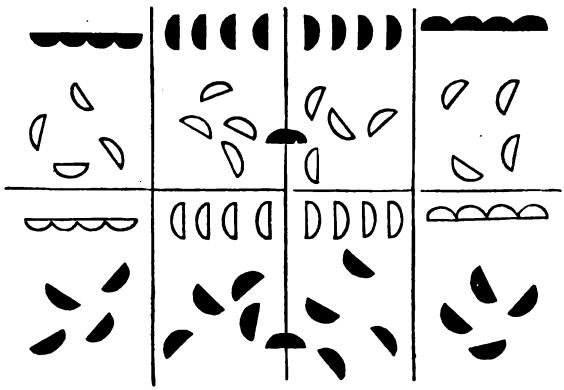

Fig. 116.

C, of three ranks, each consisting of a section of five pupils. D, of a triple file.

Fig. 116 shows the breaking of rank and file as well as the formation of sixteen pupils divided into sections of four, each of the sections having a different formation, the teacher represented by the larger black half-circle, facing the pupils.

Wheeling,

As has been already described, consists of the movement of a section round a fixed point. Thus a section of three pupils standing in close rank can wheel round each of the three.

Fig. 117 represents the wheeling to the left of three pupils, the first on the left of the rank turns to the left on the spot on which he stands, while the second and third march until they are in the same line

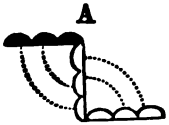

Fig. 117.

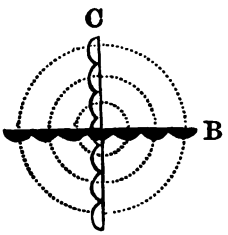

Fig. 118.

as the first; at the word—TO THE RIGHT! WHEEL! MARCH! the pupil who is the first on the right of the rank turns on the spot to the right at A, while the second and third remaining in close rank march till they are in a line with the first, as seen in the rank formed by the three dark spots.

Fig. 118—B, represents seven pupils standing in close rank. They are ordered to WHEEL ON THE CENTRE TO THE RIGHT! MARCH! The fourth pupil forming the centre turns to the right on the spot where he stands, the three pupils on the left of the centre march

forward, the three others march backward until they are in the line C, which is perpendicular to the previous line B. If the order—TO THE RIGHT! WHEEL! is given three times, the pupils will return to their original position, and a whole wheel has been formed.

Fig. 119—C, shows a rank of three pupils wheeling

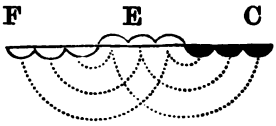

Fig. 119.

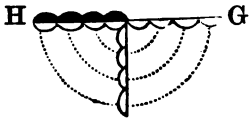

Fig. 120.

to the right about until they are in E, or the rank of F is wheeling to the left about and arrive also at E; thus in wheel about, half a circle is formed.

A section of four is wheeling to the right and right about from G to H, Fig. 120.

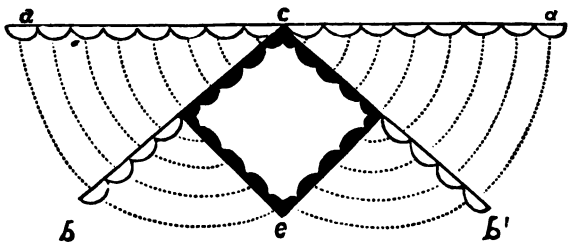

Fig. 121.

Fig. 121 represents the formation of a square by sixteen pupils, who are first divided into two sections of eight, later in four sections of four, and at the order of wheeling form the square.

The words of command are—

FALL IN! CLOSE RANK!

TELL OFF IN EIGHTS!

SECTION ON THE RIGHT TO THE LEFT, } WHEEL!
SECTION ON THE LEFT TO THE RIGHT, }

MARCH!

At this word the sections march until they arrive in *b b'*, where a right angle is formed in *c*. At the word HALT! followed by the command TELL OFF IN FOURS! the sections forming right angle remain standing, the other two sections wheel, one to the left, the other to the right, at the word MARCH! and stop when the angle *e* is formed at the word HALT!

Combination of Marching and Running.

The following is an excellent example of one section marching in line, while the other section is running:

THE WEAVERS' RUN (Fig. 122). This exercise is performed by two sections: the ones (A B C D), stand in a chain; that is, they take hold of each other's hands, with distance in front. The twos (*a b c*), stand in a row one after the other, sideways, with regard to the ones, and a few paces in advance. At the word WEAVERS' RUN! MARCH! the ones walk abreast in chain walk straight forward at quick step; the twos at the same moment begin the short run in a transversal direction, passing in front of the ones, when the last of the twos, that is, *c*, comes in front of the interval between C and

D, and the other twos in front of the other intervals, they turn sharply and pass between A B C D, the ones breaking the chain for a moment. As soon as they have passed the intervals, they turn behind A B C D,

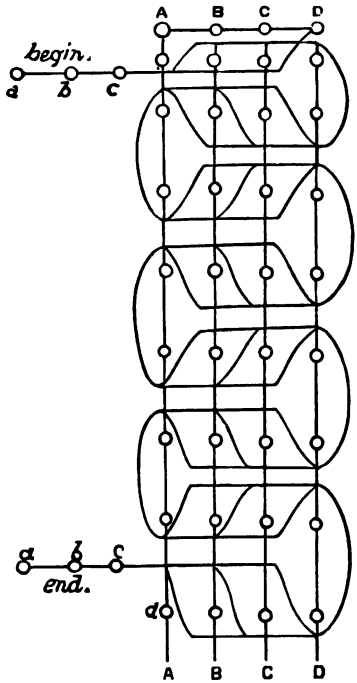

Fig. 122.

and run around D so as to come once more in front of A B C D; they then pass through the same intervals, and turning sharply, pass around A and come once more in front. When this has been done five or ten times (according to the space at disposal), the sections

change in the movements. To do this exercise with one section, there must not be less than seven persons, and not more than from twenty to twenty-four; and they must be divided in such a way that those who advance straight on, should consist of one more than the others, that there may be an interval for each of the twos. That the interval passage may be done uniformly, the ones must, for a few seconds, MARK TIME* with their feet, while the others run round and come in front.

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*This signifies that the feet are alternately lifted in time without moving from the spot.

PART IX.

FENCING.

LTHOUGH fencing is an art only to be thoroughly acquired by adults, it may, as a pastime, be practised by young people, and is, at the present time, much taught to ladies. A knowledge of fencing has been objected to on the score that it encourages duelling, but that nonsensical practice having died out, the objection no longer holds good. Fencing may therefore be safely learned and taught as an elegant and manly (or even womanly) accomplishment, developing gracefulness and activity, while it gives suppleness to the limbs, strength to the muscles, and quickness to the eye.

The rapier having disappeared with the end of duelling, is not used; instead of it the foil has been adopted, as it affords an opportunity for the exercise of the same movements as in fencing, without the danger of wounds.

The Foil.

The foil is a circular or polygonal and tapering bar of pliable and very highly tempered steel, mounted with handle and guard the same as any sword, and pro-

FOIL.

vided with a "button" on the point to prevent danger while in use. From its nature the foil can only be employed in thrusting, and as it has no edge can be handled without liability of cutting wounds. The length of the blade should be in proportion to the person using it, 31 inches being the medium length for men, and 38 inches from hilt to point being the longest which is permitted; a mask should be worn to protect the face against accident. The blade of the foil is technically divided into two parts—the "forte," and "feeble," the first extending from the hilt to the centre, and the other from the centre to the point.

The Guard.

Hold the foil in the right hand, at the same time hold the point or button in the left. Let go with the left hand, and pass the foil quickly over the head in a semi-circle and bring it down to guard, with the point toward the adversary, not higher than his face nor lower than his lowest rib. At the same moment as the

foil is being brought into position, the left hand, with fingers extended, must be raised to a level with the head, as a counterbalance to the motions which are to take place. The right foot must be advanced one step before the left, the heels be in a straight line, the knees slightly bent so as to make easy, supple movements.

There are three openings or entrances:

THE INSIDE, comprising the whole breast from shoulder to shoulder.

THE OUTSIDE, which is attacked by all thrusts made above the wrist on the outside of the sword; and

THE LOW PARTS, embracing from the armpits to the hips.

For reaching and guarding the entrances, there are five positions of the wrist: Prime, Seconde, Tierce, Carte, and Quinte. The most important, and those to commence with, are carte and tierce.

In crossing swords with an adversary, press your sword against his with sufficient force to prevent any movement taking you unprepared. This is called engaging.

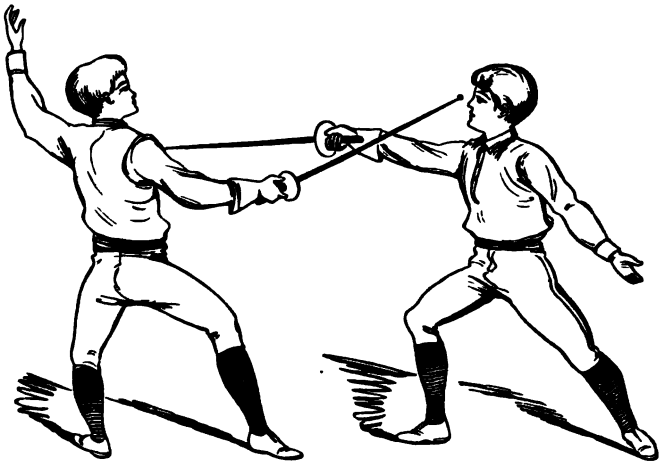
To disengage, is to slip the point of your sword quickly under his and to raise it again on the other side, pressing in a direction opposite to that in the previous case.

The following are directions for the principal guards and thrusts with accompanying drawings:

CARTE, *guard.* Turn the wrist with nails upward; the hand on a line with the lower part of breast; arm

somewhat bent, and elbow inclined a little outward; the point of foil elevated at an angle of about fifteen degrees, and directed against the upper part of adversary's breast.

Thrust. Being at the guard in carte, straighten the arm, raise the wrist above the head, drop the foil point



CARTE.

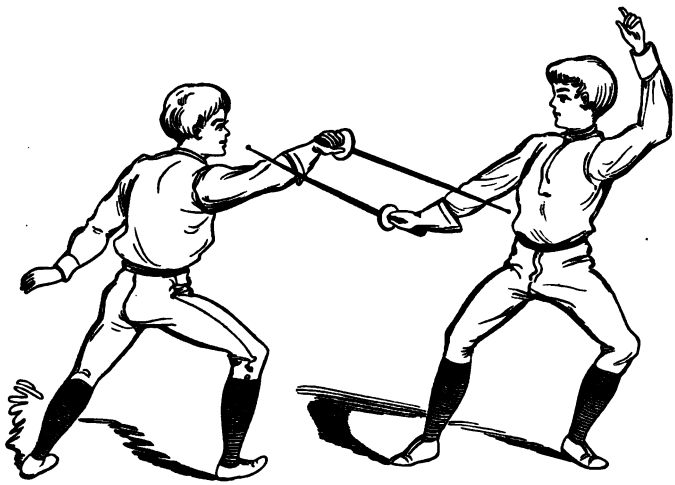
to a line with the adversary's breast, throw first the wrist, then the whole body forward by a lunge with the right foot, the left foot remaining firm. The left hand should be dropped during the lunge to a level with the thigh, extended about a foot from the body, it then acts as a counterpoise. The body during the whole movement must be kept perfectly upright.

Carte over the arm, is a variety of this thrust.

The sword is driven over the adversary's blade from the carte position, but in the tierce line.

Low carte. Engage your adversary's blade in carte, then drop the point under his wrist, in a line to his elbow, and thrust at his flank, the body being considerably bent.

Flançonnade or *octave.* Engage adversary's blade



TIERCE.

in carte and bind it with yours, then carry your point behind his wrist and under his elbow, and without quitting his blade plunge your point to his flank.

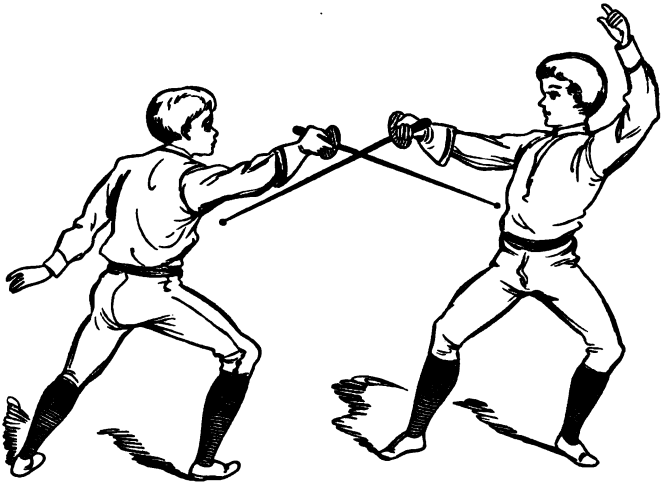
TIERCE, *guard.* As in carte, the nails and wrist being somewhat more downward, and the arm stretched a little outward, to cover the outside.

Parade. Move arm, from the guard, obliquely down-

ward to the right, about six inches, and oppose the inside of your adversary's blade.

Thrust. From the guard, turn wrist with nails downward the same height as in carte, the inside of the arm in a line with the right temple, then thrust and lunge as in carte.

SECONDE. *Parade.* Nails and wrist downward, hand

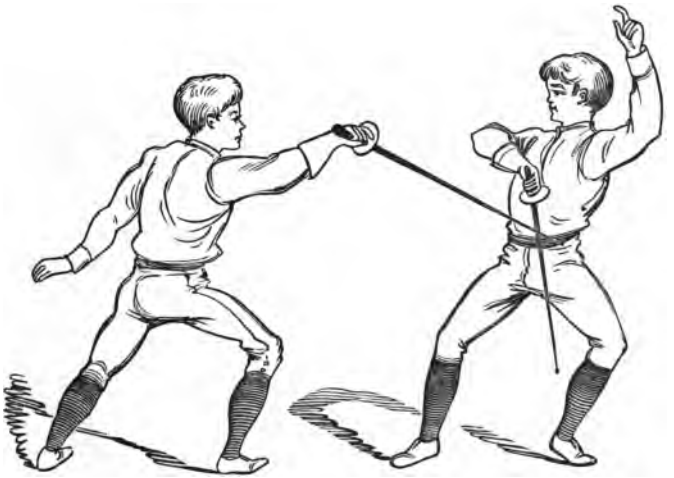


SECONDE.

opposed outward, and blade pointing low, should form an angle of 45 degrees with the ground.

Thrust. The same as in tierce, but delivered under the adversary's wrist and elbow, to a point between his right armpit and right breast, the body to be more bent than in carte or tierce.

PRIME. *Parade.* In using prime to parry the thrust in seconde, pass your point over your adversary's blade, lower it to the waist, keeping your wrist as high as your mouth, nails downward, elbow bent, and body held back as far as possible. The left foot should also be drawn back a few inches to remove the body further from the hostile point.



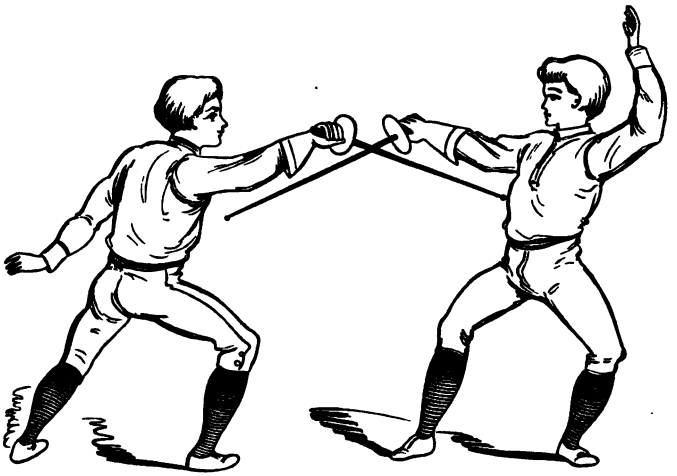
PRIME.

Thrust. An extension movement from the parade.

QUINTE. *Parade.* Wrist in high carte, sword-point low, and oppose from the forte of the outside edge of your blade.

Thrust. Make a feint on the half-circle parade with the wrist in carte; disengage your point over the adversary's blade, and thrust directly at his flank.

HALF-CIRCLE. *Parade.* One of the principal defensive parades; straighten arm, keep wrist in line with shoulder, nails up. By quick motion of wrist sweep point from right to left in a circle covering your body from head to knee, until your adversary's blade is found and opposition established.



QUINTE.

The parades parry thrusts as follows:

Carte, with wrist low, parries low carte, and seconde with wrist raised, all the thrusts over the point on inside of the sword and the flançonnade.

Tierce parries high carte, with raised wrist parries tierce.

Seconde parries all lower thrusts both inside and outside.

Half-circle parries carte, high carte tierce and seconde.

Prime parries carte, low carte and seconde.

Quinte parries seconde and flançonnade.

In all parades and parries care must be taken not to parry so wide as to leave the other side exposed to a thrust.

Every parade has its return, which should be made quickly and with decision.

After carte, parry, return in carte.

After tierce, return in tierce.

After parrying high carte, return seconde.

After parrying seconde, return in quinte.

After parade in prime, return seconde or low carte.

Feints, of which there are many, consist in threatening an attack on one side of the sword and executing it on the other. The best parry against a feint is the half-circle, which is certain to find your adversary's sword.

SALUTE. The salute is a courteous opening of the fencing, and consists in gracefully taking off the hat while yourself and adversary measure off the distance.

The word PARADE means literally PARRY.

PART X.

DRESS.

Years of experience have proved that a coarse twilled flannel makes the best dress to exercise in. Handsomer and lighter stuffs are not so suitable on account of their wearing too quickly.

Taking everything into consideration, a dark-blue color is the best. A cambric lining should be used where the dress is liable to stain the underclothes. A suit for a medium-sized girl will require about eight yards of material, the suit consisting of the dress and drawers, which must be worn on account of their warmth, and should fasten a little below the knee. Of course, flounces, rows of white or yellow braid, with other trimmings on the body and cuffs, also on the belt and pocket-laps, with some conspicuous buttons, may be added, according to taste. About six dollars ought to pay for the whole outfit, together with a cap. Always wear easy, broad-soled, low-heeled shoes. Never attempt any exercises with the feet perched on the top of French heels. In fact, high heels and corsets are not compatible with graceful and easy motions, and must therefore be avoided. Boots are better than low shoes, as the latter afford no support to the ankles.

After exercising, stay indoors until the body is cooled, or, if necessary to go out, always throw on a cloak or wrap of some sort, and never neglect overshoes in wet or cold weather. These little precautions are easily taken and will prevent cold.

Such exercises as the broom drill, performed by a number of pupils, never show so well as when all the pupils are dressed alike. Any semi-military, easily-made costume will do, and no matter how cheap the material, it will look well, if well cut and trimmed.

The illustrations accompanying the broom drill exercises will give the designer an idea of what is necessary.

PART XI.

EXERCISES OF STRENGTH AND ENDURANCE.

Under this head come various exercises or acquirements which ought to be taught to and practised by the young. They naturally follow calisthenic exercises which have prepared the muscles for exertion of a different character.

Carrying Weight.

The power of raising and carrying weight is of great importance in a general view. Many advantages will be derived from it; for besides strengthening the locomotive muscles upon which all our physical operations depend, it will fortify also the whole system and all the organs. All persons, moreover, may at some time find themselves under the necessity of carrying considerable weight—perhaps some one wounded—and may be glad to have acquired and cultivated the power to perform such an act.

In accustoming young persons to carry burdens, they should be taught to support what is on the back first with one hand and then with the other. By these means the muscles are equally exercised on both sides

and acquire an equal development. These burdens, however, must not exceed their strength; and they should be taught not to carry on one side in preference, for fear of deforming the limbs.

There are several modes of supporting weights, and of trying the amount of power possessed for this kind of exercise.

One method consists in loading the shoulders with sacks full of articles whose weight is previously known; the position of the arms and hands is such (the hands being upon the knees) that the pupil can support a great weight.

A second method supports a weight by means of a hod. This is filled with balls or stones, of which the weight is known.

The form of the weight is of consequence. A soldier now carries with ease a knapsack full of articles, and additional weight above it, because the flat shape that has been lately adopted fits the body, and lies close to the back, and the centre of gravity is thus very little deranged. But if the knapsack were of the old shape, very projecting and very round, the soldier would be forced to incline his body forward, and would not be able to carry as great a weight, nor march as long a time, in consequence of fatigue. It is for this reason, among others, desirable to extend the knowledge of the most simple rules of mechanics, because these rules are serviceable in avoiding many dangers, and diminishing the fatigue and the efforts that vacillation in the move-

ments produces. We may make use of a hook to bear boxes or bags in addition, with the weights marked, and thus learn the carrier's strength.

Milo, says history, first carried a calf immediately after its birth, and continued to do so every day till it had reached its full size. It was said by this means that he was able to carry even the ox itself, and afterward throw it on the ground and kill it with his fist.

Augustus the Second, King of Poland, carried a man upon his hand.

A man named Roussel, a laborer in the environs of Lisle, who on a smaller scale (being but four feet ten inches in height), was formed exactly like the Farnese Hercules, raised on his shoulders a weight of eighteen hundred pounds. He cleared a circle six feet in height with very little spring and one hundred weight in each hand. When seated on the ground, he rose up without aid, carrying two men on his arms. Equally astonishing in the strength of his loins, he took up two hundredweight leaning backwards over a chair. "I have seen this remarkable man," says Friedlander: "the whole of his family are very strong: his sister and brother are equally remarkable in this point." It is very striking to find in him the characteristic traits with which antiquity depicted the ideal of bodily strength.

In the Encyclopædia of Krumtz, vol. lxxii., we find instances of some men similar to Roussel, who lived at the commencement of the last century. A man named

Eckenberg raised a cannon of two thousand five hundred pounds weight; and two strong men were unable to take from him a stick that he held between his teeth.

In number 446 of the Bibliotheque Britannique, is to be found a report of some trials made by a Mr. Shulze, in his manufactory, of the strength of men of different heights. These trials show what influence an elevated stature has upon the vertical height to which a man can raise any weight. A short man is, in his turn, capable of employing more force in another direction.

Throwing the Discus.

Among the Greeks, throwing the discus did not form part of the games till the eighteenth Olympiad. This exercise consisted in throwing, as far as possible, a mass of wood or stone, but more commonly of iron or copper, of a lenticular form. From the testimony of ancient authors, there was no mark or butt fixed, except the spot where the discus thrown by the strongest of the discoboli alighted. Mercuriali has handed down to us three engravings, in which the discus is not of the same shape. The first engraving represents four discoboli in the act of throwing with the right hand a discus which is as thick at the circumference as at the centre, which has been bored. The second represents the statue of a discobolus holding a discus apparently of a spherical form, in the left hand. The third shows the arm of an athlete with a flat discus. The discus in

the last two engravings now mentioned, covers the greater part of the front of the forearm; and all that the ancients have written respecting this instrument, tends to show that it was of enormous size and weight. Homer tells us, that the athletes threw the discus either up into the air merely as a prelude to accustom their arms to it, or horizontally, when they were striving for the prize.

To perform this exercise properly, the thrower should not only balance the discus well on the right arm, but at the moment it leaves the hand, he should throw the whole of the right side forward, so that the impulse may be assisted by the weight of the whole body. This exercise very much strengthens the body, and develops, in a particular manner, the limb by which the discus is thrown. It may be usefully employed in cases where it is desirable to remedy weakness in either of the arms; and it is well calculated to bring up the power of the left arm to that of the right. The modern quoit differs from the ancient discus only in this, that the instrument so called is much smaller than the discus, that its use is a mere idle pastime, and that the object is always to throw it as close as possible to a fixed mark, requiring more skill than strength.

It is evident that the discus may be heaved from above the shoulder as well as flung from below. No exercises can excel these for the acquirement of power. They ought to be much practised with both hands. A man of moderate strength will throw a pound weight of lead a distance of 140 feet, or thereabouts.

Climbing.

Climbing is the art of transporting the body in any direction, by the aid, in general, both of the hands and feet. The climbing-stand consists of two strong poles, about fifteen feet high, and from fifteen to twenty-five feet distant, which are firmly fixed in the ground, and support a beam strongly fastened to them. One pole is two inches and a half in diameter; the other, which serves as a mast, should be considerably thicker; and both serve the purpose of climbing. To the beam are attached other implements of climbing, viz.: a ladder, an inclined board, a mast, an inclined pole, a horizontal bar, a rope ladder, an upright, an inclined, and a level rope.

Kinds of Climbing.

Climbing on fixed bodies should first be practised.

The Ladder.

Exercises on the ladder may be practised in the following ways:

1. By ascending and descending as usual.
2. With one hand, carrying something in the other.
3. Without using the hands.
4. Passing another on the front of the ladder, or swinging to the back, to let another pass.

The Inclined Board.

This should be rather rough, about two feet broad, and two inches thick. To climb it, it is necessary to

seize both sides with the hands, and to place the feet flat in the middle, the inclination of the board being diminished with the progress of the pupil.

At first it may form with the ground an angle of about thirty degrees, and the climber should not go more than half-way up. This angle may gradually be augmented to a right angle, or the direction of the board may be made perpendicular. When the board is thus little or not at all inclined, the body must be much curved inward, and the legs thrust up, so that the higher one is nearly even with the hand. In descending, small and quick steps are necessary.

The Upright Pole.

The upright pole should be about two inches and a half in diameter, perfectly smooth and free from splinters.

The position of the climber should be such that nothing touches the pole except the feet, legs, knees, and hands. He grasps as high as possible with both hands, raises himself by bending the body and drawing his legs up the pole, holds fast by them, extends the body, again grasps higher up with his hands, and continues the same use of the legs and arms. The descent is performed by sliding down with the legs, and scarcely touching with the hands.

The Mast.

This is more difficult, as it cannot be grasped with the hands; and it consequently should not be practised until the climber is expert in the previous exercises. The position of the legs is the same as for the pole; but, instead of grasping the mast, the climber lays hold of his left arm with his right hand, or the reverse, and clings to the mast with the whole body.

The Slant Pole.

This must be at least three inches thick; and as, in this exercise, the hands bear more of the weight than in climbing the upright pole, it should not be attempted until expertness in the other is acquired.

The Horizontal, or Slightly Inclined Bar.

This may be about two inches wide at top, from ten to fifteen feet long, and supported by two posts, respectively six and seven feet high. The climber must grasp with both hands as high a part of the bar as he can reach, and, with arms extended, support his own weight as long as possible. He must next endeavor to bend the elbows so much, that one shoulder remains close under the bar. Or, he may place both hands on the same side, and draw himself up so far as to see over it, keeping the legs and feet close and extended.

He may then hang with his hands fixed on both sides, near to each other, having the elbows much bent, the upper parts of the arms close to the body, and one

shoulder close under the bar; may lower the head backwards, and may, at the same time, raise the feet to touch each other over the bar. In the last position, he may move the hands one before the other, forward or backward, and may either slide the feet along the bar, or alternately change them like the hands, and retain a similar hold.

Hanging also by the hands alone, he moves them either forward or backward, keeping the arms firm, and the feet close and extended. Or, he may place himself in front of the bar, hanging by both hands, and move laterally. Being likewise in front of the bar, with his hands resting upon it, he may move along the bar either to the right or left. The climber may endeavor to sit upon the bar, for instance, on the right side, by taking hold with the right knee-joint, grasping firmly with the right hand, and bringing the left armpit over the bar. The riding position is thus easily obtained. From the riding position, he may, by supporting himself with one thigh, turn toward the front of the bar, allowing the leg of the other side to hang down; and he may then very easily move along the bar sideways, by raising his body with his hands placed laterally on the bar.

The Rope Ladder.

This should have several rundles to spread it out, and ought, in all respects, to be so constructed as not to twist and entangle. The only difficulty here is that, as 't hangs perpendicularly, and is flexible, its steps are

liable to be pushed forward, and in that case the body is thrown into an oblique position, and the whole weight falls on the hands. To prevent this, the climber must keep the body stretched out and upright.

The Upright Rope.

In this exercise, the securing the rope may be effected in various ways. In the first method the hands and feet alone are employed. The feet are crossed; the rope passes between them, and is held fast by their pressure; the hands then grasp higher; the feet are drawn up; they are again applied to the rope, and the same process is repeated. In the second, which is the sailor's method, the rope passes from the hands, generally along the right thigh, just above the knee; winds round the inside of the thigh, under the knee-joint, over the outside of the leg, and across the instep, whence it hangs loose; and the climber, by treading with the left foot upon that part of the rope where it crosses the right one, is firmly supported. This mode of climbing requires the right leg and foot to be so managed that the rope keeps its proper winding whenever it is quitted by the left foot. In descending, to prevent injury, the hands must be lowered alternately.

To rest upon the upright rope, the climber must swing the right foot round the rope, so as to wind it three or four times round the leg; must turn it, by means of the left foot, once or twice round the right one, of which the toes are to be bent upwards; and

must tread firmly with the left foot upon the last winding. Or, to obtain a more perfect rest, he may lower his hands along the rope, hold with the right hand, stoop, grasp with the left the part of the rope below the feet, raise it and himself again, and wind it round his shoulders, etc., until he is firmly supported.

The Oblique Rope.

The climber must fix himself to the rope and advance the hands along it, as already directed. The feet may move along the rope alternately; or one leg, hanging over the rope, may slide along it; or, which is best, the sole of one foot may be laid upon the rope, and the other leg across its instep, so that the friction is not felt.

The Level Rope.

This may have its ends fastened to posts of equal heights; and the same exercises may be performed upon it.

Climbing Trees.

In attempting this exercise, the kind of the wood and strength of the branches must be considered. Summer is the best time for practising it, as withered branches are then most easily discerned; and even then it is best to climb low trees, until some experience is acquired. As the surface of branches is smooth, or moist and slippery, the hands must never for a moment be relaxed.

Swimming.

Swimming, considered with regard to the movements that it requires, is useful in promoting great muscular strength; but the good effects are not solely the result of the exercise that the muscles receive, but partly of the medium in which the body is moved. Both the considerable increase of general force, and the tranquilizing of the nervous system produced by swimming, arise chiefly from this, that the movements, in consequence of the cold and dense medium in which they take place, occasion no loss. It is easy to conceive of what utility swimming must be, where the very high state of the atmospheric temperature requires inactivity in consequence of the excessive loss caused by the slightest movement. It then becomes an exceedingly valuable resource, the only one, indeed, by which muscular weakness can be remedied, and the energy of the vital functions maintained. We must, therefore, regard swimming as one of the most beneficial exercises that can be taken in summer.

The ancients, particularly the Athenians, regarded swimming as indispensable; and when they wished to designate a man who was fit for nothing, they used to say, "he cannot even swim," or, "he can neither read nor swim." At many seaports, the art of swimming is almost indispensable; and the sailors' children are as familiar with the water as with the air. Copenhagen is perhaps the only place where sailors are trained by

rules of art; and there, this exercise is more general and in greater perfection than elsewhere. It may here be observed, that it is not fear alone that prevents a man swimming. Swimming is an art that must be learned; and fear is only an obstacle to the learning.

Preparatory Instructions as to Attitude and Action in Swimming.

As it is on the movements of the limbs, and a certain attitude of the body, that the power of swimming depends, its first principles may evidently be acquired out of the water.

Attitude.

The head must be drawn back, and the chin elevated, the breast projected, and the back hollowed and kept steady. The head can scarcely be thrown too much back, or the back too much hollowed. Those who do otherwise, swim with their feet near the surface of the water, instead of having them two or three feet deep.

Action of the Hands.

In the proper position of the hands, the fingers must be kept close, with the thumbs by the edge of the forefingers; and the hands made concave on the inside, though not so much as to diminish their size and power in swimming. The hands, thus formed, should be placed just before the breast, the wrist touching it, and the fingers pointing forward.

The first elevation is formed by raising the ends of the fingers three or four inches higher than the rest of the hands. The second, by raising the outer edge of the hand two or three inches higher than the inner edge.

The formation of the hands, their first position, and their two modes of elevation, being clearly understood, the forward stroke is next made, by projecting them in that direction to their utmost extent, employing therein their first elevation, in order to produce buoyancy, but taking care the fingers do not break the surface of the water. In the outward stroke of the hands, the second elevation must be employed; and, in it, they must sweep downward and outward as low as, but at a distance from, the hips, both laterally and anteriorly.

The retraction of the hands is effected by bringing the arms closer to the sides, bending the elbow joints upwards and the wrists downwards, so that the hands hang down, while the arms are raising them to the first position, the action of the hands being gentle and easy. In the three movements just described, one arm may be exercised at a time, until each is accustomed to the action.

Action of the Feet.

In drawing up the legs, the knees must be inclined inward, and the soles of the feet outward. The throwing out the feet should be to the extent of the legs, as widely from each other as possible. The bringing down the legs must be done briskly, until they come close

together. In drawing up the legs, there is a loss of power; in throwing out the legs, there is a gain equal to that loss; and in bringing down the legs, there is an evident gain.

The arms and legs should act alternately, the arms descending while the legs are rising; and, oppositely, the arms rising while the legs are descending. Thus the action of both is unceasingly interchanged; and, until great facility in this interchange is effected, no one can swim smoothly, or keep the body in one continued progressive motion. In practising the action of the legs, one hand may rest on the top of a chair, while the opposite leg is exercised. When both the arms and the legs are separately accustomed to the action, the arm and leg of the same side may be exercised together.

Place and Time of Swimming.

Place.

Of all places for swimming, the sea is the best; running waters next; and ponds the worst. In these a particular spot should be chosen, where there is not much stream, and which is known to be safe.

The swimmer should make sure that the bottom is not out of his depth; and, on this subject, he cannot be too cautious when he has no one with him who knows the place. If capable of diving, he should ascertain if the water be sufficiently deep for that purpose, otherwise he may injure himself against the bot-

tom. The bottom should be of gravel, or smooth stones, and free from holes, so that he may be in no danger of sinking in the mud or wounding the feet. Of weeds he must beware; for if his feet get entangled among them, no aid, even if near, may be able to extricate him.

Time.

The best season of the year for swimming is during the months of May, June, July, and August. Morning before breakfast—that is to say, from seven till eight o'clock—is the time. In the evening, the hair is not perfectly dried, and coryza is sometimes the consequence. Bathing during rain is bad, for it chills the water, and, by wetting the clothes, endangers catching cold. In practising swimming during those hours of the day when the heat of the sun is felt most sensibly, if the hair be thick, it should be kept constantly wet; if the head be bald, it must be covered with a handkerchief, and frequently wetted.

It is advisable not to enter the water before digestion is finished. The danger in this case arises less from the violent movements which generally disorder digestion, than from the impression produced by the medium in which these movements are executed. It is not less so when very hot, or quite cold. It is wrong to enter the water in a perspiration, however trifling it may be. After violent exercises, it is better to wash and employ friction than to bathe. Persons of plethoric temperament, who are subject to periodical evacuations, such as

hemorrhoids, or even to cutaneous eruptions, will do well to abstain from swimming during the appearance of these affections.

Dress.

Every swimmer should use short drawers, and might, in particular places, use canvas slippers. It is even of great importance to be able to swim in jacket and trousers.

Aids.

The aid of the hand is much preferable to corks or bladders, because it can be withdrawn gradually and insensibly. With this view, a grown-up person may take the learner in his arms, carry him into the water breast-high, place him nearly flat upon it, support him by one hand under the breast, and direct him as to attitude and action. If the support of the hand be very gradually withdrawn, the swimmer will, in the course of the first ten days, find it quite unnecessary. When the aid of the hand cannot be obtained, inflated membranes or corks may be employed. The only argument for their use is, that attitude and action may be perfected while the body is thus supported; and that, with some contrivance, they also may gradually be laid aside, though by no means so easily as the hand.

The best mode of employing corks is to choose a piece about a foot long, and six or seven inches broad; to fasten a band across the middle of it; to place it on the back, so that the upper end may come between the shoulder-blades, where the edge may be

rounded, and to tie the band over the breast. Over this, several other pieces of cork, each smaller than the preceding, may be fixed, so that, as the swimmer improves, he may leave them off one by one. Even with all these aids, the young swimmer should never venture out of his depth, if he cannot swim without them.

Cramp.

As to cramp, those chiefly are liable to it who plunge into the water when they are heated, who remain in it till they are benumbed with cold, or who exhaust themselves by violent exercise. Persons subject to this affection must be careful with regard to the selection of the place where they bathe, if they are not sufficiently skilful in swimming to vary their attitudes, and dispense instantly with the use of the limb attacked by cramp. Even when this does occur, the skilful swimmer knows how to reach the shore by the aid of the limbs which are unaffected, while the uninstructed one is liable to be drowned.

If attacked in this way in the leg, the swimmer must strike out the limb with all his strength, thrusting the heel downward and drawing the toes upward, notwithstanding the momentary pain it may occasion; or, he may immediately turn flat on his back, and jerk out the affected limb in the air, taking care not to elevate it so high as greatly to disturb the balance of the body. If this does not succeed, he must paddle ashore with his hands, or keep himself afloat by their aid, until assist-

ance reach him. Should he even be unable to float on his back, he must put himself in the upright position, and keep his head above the surface by merely striking the water downward with his hands at the hips, without any assistance from the legs.

Procedure when in the Water, and Usual Mode of Front Swimming.

Entering the Water.

Instructors should never force young swimmers reluctantly to leap into the water. It would be advisable for delicate persons, especially when they intend to plunge in, to put a little cotton steeped in oil, and afterward pressed, in their ears, before entering the water. This precaution will prevent irritation of the organ of hearing. In entering, the head should be wetted first, either by plunging in head foremost, or by pouring water on it, in order to prevent the pressure of the water driving up the blood into it too quickly, and increasing congestion. The swimmer should next advance, by a clear shelving shore or bank, where he has ascertained the depth by plumbing or otherwise, till the water reaches his breast; should turn toward the place of entrance, and, having inflated his breast, lay it upon the water, suffering that to rise to his chin, the lips being closed.

Buoyancy in the Water.

The head alone is specifically heavier than salt water. Even the legs and arms are specifically lighter, and the

trunk is still more so. Thus the body cannot sink in salt water, even if the lungs were filled, except owing to the excessive specific gravity of the head.

Not only the head, but the legs and arms, are specifically heavier than fresh water; but still the hollowness of the trunk renders the body altogether too light to sink wholly under water, so that some part remains above until the lungs become filled. In general, when the human body is immersed, one-eleventh of its weight remains above the surface in fresh water, and one-tenth in salt water.

In salt water, therefore, a person throwing himself on his back, and extending his arms, may easily lie so as to keep his mouth and nostrils free for breathing, and, by a small motion of the hand, may prevent turning, if he perceive any tendency to it. In fresh water, a man cannot long continue in that situation, except by the action of his hands; and if no such action be employed, the legs and lower part of the body will gradually sink into an upright position, the hollow of the breast keeping the head uppermost. If, however, in this position, the head be kept upright above the shoulders, as in standing on the ground, the immersion, owing to the weight of the part of the head out of the water, will reach above the mouth and nostrils, perhaps a little above the eyes. On the contrary, in the same position, if the head be leaned back, so that the face is turned upwards, the back part of the head has its weight supported by the water, and the face will rise an inch

higher at every inspiration, and will sink as much at every expiration, but never so low that the water can come over the mouth.

For all these reasons, though the impetus given by the fall of the body into water occasions its sinking to a depth proportioned to the force of the descent, its natural buoyancy soon impels it again to the surface, where, after a few oscillations up and down, it settles with the head free.

Unfortunately, ignorant people stretch the arms out to grasp at anything or nothing, and thereby keep the head under; for the arms and head, together exceeding in weight one-tenth of the body, cannot remain above the surface at the same time. The buoyancy of the trunk, then and then only, occasions the head and shoulders to sink, the ridge of the bent back becoming the portion exposed; and, in this attitude, water is swallowed, by which the specific gravity is increased, and the body settles to the bottom. It is, therefore, most important to the safety of the inexperienced to be firmly convinced that the body naturally floats.

To satisfy the beginner of the truth of this, Dr. Franklin advises him to choose a place where clear water deepens gradually, to walk into it till it is up to his breast, to turn his face to the shore, and to throw an egg into the water between him and it—so deep that he cannot fetch it up but by diving. To encourage him to take it up, he must reflect that his progress will be from deep to shallow water, and that at any time he

may, by bringing his legs under him, and standing on the bottom, raise his head far above the water. He must then plunge under it, having his eyes open, before as well as after going under; throw himself toward the egg, and endeavor, by the action of his hands and feet against the water, to get forward till within reach of it. In this attempt, he will find that the water brings him up against his inclination, that it is not so easy to sink as he imagined, and that he cannot, but by force, get down to the egg. Thus he feels the power of water to support him, and learns to confide in that power; while his endeavors to overcome it, and reach the egg, teach him the manner of acting on the water with his feet and hands, as he afterward must in swimming, in order to support his head higher above the water, or to go forward through it.

If, then, any person, however unacquainted with swimming, will hold himself perfectly still and upright, as if standing with his head somewhat thrown back so as to rest on the surface, his face will remain above the water, and he will enjoy full freedom of breathing. To do this most effectually, the head must be so far thrown back that the chin is higher than the forehead, the breast inflated, the back quite hollow, and the hands and arms kept under water. If these directions be carefully observed, the face will float above the water, and the body will settle in a diagonal direction.

In this case, the only difficulty is to preserve the balance of the body. This is secured, as described by

Bernardi, by extending the arms laterally under the surface of the water, with the legs separated, the one to the front and the other behind: thus presenting resistance to any tendency of the body to incline to either side, forward or backward. This posture may be preserved any length of time.

The Abbé Paul Moccia, who lived in Naples in 1760, perceived, at the age of fifty, that he could never entirely cover himself in the water. He weighed three hundred pounds (Italian weight), but being very fat, he lost at least thirty pounds in the water. Robertson had just made his experiments on the specific weight of man, and everybody was then occupied with the Abbé, who could walk in the water with nearly half his body out of it.

Attitude and Action in the Water.

The swimmer having, by all the preceding means, acquired confidence, may now practise the instructions already given on attitude and action in swimming; or, he may first proceed with the system of Bernardi, which immediately follows. As the former have already been given in ample detail, there is nothing new here to be added respecting them, except that, while the attitude is correct, the limbs must be exercised calmly, and free from all hurry and trepidation, the breath being held, and the breast kept inflated, while a few strokes are made. In swimming in the usual way, there is, first, extension, flexion, abduction, and adduction of the

members; secondly, almost constant dilation of the chest, to diminish the mobility of the point of attachment of the muscles which are inserted in the elastic sides of this cavity, and to render the body specifically lighter; thirdly, constant action of the muscles of the back part of the neck, to raise the head, which is relatively very heavy, and to allow the air free entrance to the lungs.

Respiration in Swimming.

If the breath is drawn at the moment when the swimmer strikes out with the legs, instead of when the body is elevated by the hands descending toward the hips, the head partially sinks, the face is driven against the water, and the mouth becomes filled. If, on the contrary, the breath is drawn when the body is elevated by the hands descending toward the hips, when the progress of the body forward consequently ceases, when the face is no longer driven against the water, but is elevated above the surface,—then, not only cannot the water enter, but if the mouth were at other times even with, or partly under the surface, no water could enter it, as the air, at such times, driven outward between the lips, would effectually prevent it. The breath should accordingly be expired while the body, at the next stroke, is sent forward by the action of the legs.

Coming out of the Water.

Too much fatigue in the water weakens the strength and presence of mind necessary to avoid accidents. A

person who is fatigued, and remains there without motion, soon becomes weak and chilly. As soon as he feels fatigued, chill, or numbed, he should quit the water, and dry and dress himself as quickly as possible. Friction, previous to dressing, drives the blood over every part of the body, creates an agreeable glow, and strengthens the joints and muscles.

Upright Swimming.

Bernardi's System.

The principal reasons given by Bernardi for recommending the upright position in swimming, are—its conformity to the accustomed movement of the limbs; the freedom it gives to the hands and arms, by which any impediment may be removed, or any offered aid readily laid hold of; vision all around; a much greater facility of breathing; and lastly, that much less of the body is exposed to the risk of being laid hold of by persons struggling in the water.

The less we alter our method of advancing in the water from what is habitual to us on shore, the more easy do we find a continued exercise of it. The most important consequence of this is, that, though a person swimming in an upright posture advances more slowly, he is able to continue his course much longer; and certainly nothing can be more beneficial to a swimmer than whatever tends to husband his strength, and to enable him to remain long in the water with safety.

Bernardi's primary object is to enable the pupil to

float in an upright posture, and to feel confidence in the buoyancy of his body. He accordingly supports the pupil under the shoulders until he floats tranquilly with the head and part of the neck above the surface, the arms being stretched out horizontally under water. From time to time, the supporting arm is removed, but again restored, so as never to suffer the head to sink, which would disturb the growing confidence and give rise to efforts destructive of the success of the lesson. In this early stage, the unsteadiness of the body is the chief difficulty to be overcome.

The head is the great regulator of our movements in water. Its smallest inclination to either side instantly operates on the whole body, and, if not corrected, throws it into a horizontal posture. The pupil must, therefore, restore any disturbance of equilibrium by a cautious movement of the head alone in an opposite direction. This first lesson being familiarized by practise, he is taught the use of the legs and arms for balancing the body in the water. One leg being stretched forward, the other backward, and the arms laterally, he soon finds himself steadily sustained, and independent of further aid in floating.

When these first steps have been gained, the sweeping semi-circular motion of the arms is shown. This is practised slowly, without motion forwards, until attained with precision. After this, a slight inclination of the body from the upright position occasions its advancing. The motion of striking with the legs is added

in the same measured manner, so that the pupil is not perplexed by the acquisition of more than one thing at a time. In this method, the motions of both arms and legs differ from those we have so carefully described, only in so far as they are modified by a more upright position. It is optional, therefore, with the reader, to practise either method. The general principles of both are now before him.

The upright position a little inclined backwards (which, like every other change of posture, must be done deliberately, by the corresponding movement of the head), reversing in this case the motion of the arms, and striking the flat part of the foot down and a little forward, gives the motion backward, which is performed with greater ease than when the body is laid horizontally on the back. According to this system, Bernardi says, a swimmer ought at every stroke to urge himself forward a distance equal to the length of his body. A good swimmer ought to make about three miles an hour. A good day's journey may thus be achieved, if the strength be used with due discretion, and the swimmer be familiar with the various means by which it may be recruited.

Of Bernardi's successful practice he says: "Having been appointed to instruct the youths of the Royal Naval Academy of Naples in the art of swimming, a trial of the proficiency of the pupils took place, under the inspection of a number of people assembled on the shore for that purpose, on the tenth day of their in-

struction. A twelve-oared boat attended the progress of the pupils, from motives of precaution. They swam so far out in the bay, that at length the heads of the young men could with difficulty be discerned with the naked eye; and the Major-General of Marine, Forteguerri, for whose inspection the exhibition was intended, expressed serious apprehensions for their safety. Upon their return to the shore, the young men, however, assured him that they felt so little exhausted as to be willing immediately to repeat the exertion." An official report on the subject has also been drawn up by a commission (appointed by the Neapolitan government), after devoting a month to the investigation of Bernardi's plan, and it states as follows:

"1. It has been established by the experience of more than a hundred persons of different bodily constitutions, that the human body is lighter than water, and consequently will float by nature; but that the art of swimming must be acquired, to render that privilege useful.

"2. That Bernardi's system is new, in so far as it is founded on the principle of husbanding the strength, and rendering the power of recruiting it easy. The speed, according to the new method, is no doubt diminished, but security is much more important than speed; and the new plan is not exclusive of the old, when occasions require great effort.

"3. That the new method is sooner learned than the old, to the extent of advancing a pupil in one day as far as a month's instruction on the old plan."

Treading Water.

This differs little from the system just described. As in it, the position is upright; but progression is obtained by the action of the legs alone. There is little power in this method of swimming; but it may be very useful in rescuing drowning persons.

The arms should be folded across, below the breast, or compressed against the hips, and the legs employed as in front swimming, except as to time and extent. They should perform their action in half the usual time, or two strokes should be taken in the time of one; because, acting perpendicularly, each stroke would otherwise raise the swimmer too much, and he would sink too low between the strokes, were they not quickly to follow each other. They should also work in about two-thirds of the usual space, preserving the upper or stronger, and omitting the lower or weaker, part of the stroke.

There is, however, another mode of treading water, in which the thighs are separated, and the legs slightly bent, or curved together, as in a half-sitting posture. Here the legs are used alternately, so that, while one remains more contracted, the other, less so, describes a circle. By this method, the swimmer does not seem to hop in the water, but remains nearly at the same height.

Back Swimming.

In swimming on the back, the action of the thoracic member is weaker, because the swimmer can support

himself on the water without their assistance. The muscular contractions take place principally in the muscles of the abdominal members, and in those of the anterior part of the neck. Though little calculated for progression, it is the easiest of all methods, because, much of the head being immersed, little effort is required for support. For this purpose, the swimmer must lie down gently upon the water, the body extended, the head kept in a line with it, so that the back and much of the upper part of the head may be immersed; the head and breast must remain perfectly unagitated by the action of the legs; the hand laid on the thighs, and the legs employed as in front swimming, care being taken that the knees do not rise out of the water. The arms may, however, be used in various ways in swimming on the back.

In the method called winging, the arms are extended till in a line with each other; they must then be struck down to the thighs, with the palms turned in that direction, and the thumbs inclining downward to increase the buoyancy, the palms must then be moved edgewise, and the arms elevated as before, and so on, repeating the same actions. The legs should throughout make one stroke as the arms are struck down, and another as they are elevated. The other mode, called finning, differs from this only in the stroke of the arms being shorter, and made in the same time as that of the legs.

In back swimming, the body should be extended

after each stroke, and long pauses made between these. The act of passing from front to back, or back to front swimming, must always be performed immediately after throwing out the feet. To turn from the breast to the back, the legs must be raised forward, and the head thrown backward, until the body is in a right position. To turn from the back to the breast, the legs must be dropped, and the body thrown forward on the breast.

Floating.

Floating is properly a transition from swimming on the back. To effect it, it is necessary, while the legs are gently exercising, to extend the arms as far as possible beyond the head, equidistant from, and parallel with its sides, but never rising above the surface; to immerse the head rather deeply, and elevate the chin more than the forehead; to inflate the chest while taking this position, and so to keep it as much as possible, and to cease the action of the legs, and put the feet together. The swimmer will thus be able to float, rising a little with every inspiration, and falling with every expiration. Should the feet descend, the loins may be hollowed.

Side Swimming.

For this purpose, the body may be turned either upon the right or left side; the feet must perform their usual motions; the arms also require peculiar guidance. In lowering the left, and elevating the right side, the

swimmer must strike forward with the left hand, and sidewise with the right; the back of the latter being front instead of upward, and the thumb-side of the hand downward to serve as an oar. In turning on the right side, the swimmer must strike out with the right hand, and use the left as an oar. In both cases, the lower arm stretches itself out quickly, at the same time that the feet are striking; and the upper arm strikes at the same time that the feet are impelling, the hand of the latter arm beginning its stroke on a level with the head. While this hand is again brought forward, and the feet are contracted, the lower hand is drawn back toward the breast, rather to sustain than to impel. As side swimming presents to the water a smaller surface than front swimming, it is preferable when rapidity is necessary. But, though generally adopted when it is required to pass over a short distance with rapidity, it is much more fatiguing than the preceding methods.

Plunging.

In the leap to plunge, the legs must be kept together, the arms close, and the plunge made either with the feet or the head foremost. With the feet foremost they must be kept together, and the body inclined backwards. With the head foremost, the methods vary.

In the deep plunge, which is used where it is known that there is depth of water, the swimmer has his arms outstretched, his knees bent, and his body leaned forward till the head descends nearly to the feet, when

the spine and knees are extended. This plunge may be made without the slightest noise. When the swimmer rises to the surface, he must not open his mouth before previously repelling the water.

In the flat plunge, which is used in shallow water, or where the depth is unknown, and which can be made only from a small height, the swimmer must fling himself forward, in order to extend the line of the plunge as much as possible under the surface of the water; and, as soon as he touches it, he must keep his head up, his back hollow, and his hands stretched forward, flat and inclined upward. He will thus dart forward a considerable way close under the surface, so that his head will reach it before the impulse ceases to operate.

Diving.

The swimmer may prepare for diving by taking a slow and full inspiration, letting himself sink gently into the water, and expelling the breath by degrees, when the heart begins to beat strongly. In order to descend in diving, the head must be bent forward upon the breast, the back made round, and the legs thrown out with greater vigor than usual; but the arms and hands, instead of being struck forward as in swimming, must move rather backward, or come out lower, and pass more behind. The eyes should, meanwhile, be kept open, as, if the water be clear, it enables the diver to ascertain its depth, and see whatever lies at the bot-

tom; and, when he has obtained a perpendicular position, he should extend his hands like feelers.

To move forward, the head must be raised, and the back straightened a little. Still, in swimming between top and bottom, the head must be kept a little downward, and the feet be thrown out a little higher than when swimming on the surface, and if the swimmer thinks that he approaches too near the surface, he must press the palms upwards. To ascend, the chin must be held up, the back made concave, the hands struck out high, and brought briskly down.

Thrusting.

This is a transition from front swimming, in which the attitude and motions of the feet are still the same, but those of the hands very different. One arm, the right for instance, is lifted entirely out of the water, thrust forward as much as possible, and, when at the utmost stretch, let fall, with the hand hollowed, into the water, which it grasps or pulls toward the swimmer in its return transversely toward the opposite armpit. While the right arm is thus stretched forth, the left, with the hand expanded, describes a small circle to sustain the body, and, while the right arm pulls toward the swimmer, the left, in a widely-described circle, is carried rapidly under the breast, toward the hip.

When the left arm has completed these movements, it, in its turn, is lifted from the water, stretched forward, and pulled back, the right arm describing first the

smaller, then the larger circle. The feet make their movements during the describing of the larger circle. The thrust requires much practise, but, when well acquired, it not only relieves the swimmer, but enables him to make great advance in the water, and is applicable to cases where rapidity is required for a short distance.

Springing.

Some swimmers, at every stroke, raise not only their neck and shoulders, but breast and body, out of the water. This, when habitual, exhausts without any useful purpose. As an occasional effort, however, it may be useful in seizing objects above; and it may then best be performed by the swimmer drawing his feet as close as possible under his body, stretching his hands forward, and, with both feet and hands, striking the water strongly, so as to throw himself out of it as high as the hips.

One-arm Swimming.

Here the swimmer must be more erect than usual, hold his head more backward, and use the legs and arm more quickly and powerfully. The arm, at its full extent, must be struck out rather across the body, and brought down before, and the breast kept inflated. This mode of swimming is best adapted for assisting persons who are drowning, and should be frequently practised—the learner carrying first under, then over the water, a weight of a few pounds.

In assisting drowning persons, however, great care should be taken to avoid being caught hold of by them. They should be approached from behind, and driven before, or drawn after the swimmer to the shore, by the intervention, if possible, of anything that may be at hand, and if nothing be at hand, by means of their hair; and they should, if possible, be got on their backs. Should they attempt to seize the swimmer, he must cast them loose immediately, and, if seized, drop them to the bottom, when they will endeavor to rise to the surface.

Two swimmers treading water may assist a drowning person by seizing him, one under each arm, and carrying him along with his head above water, and his body and limbs stretched out and motionless.

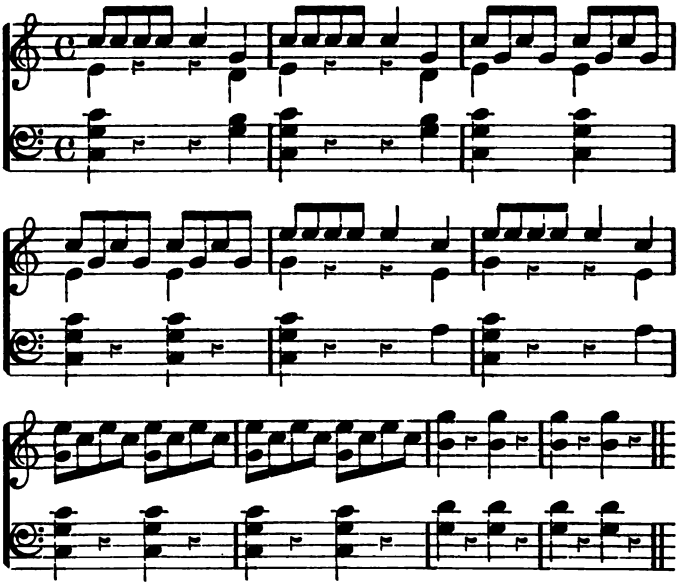
Feats in Swimming.

Men have been known to swim in their clothes a distance of 4,000 feet.

Others have performed 2,200 feet in twenty-nine minutes.

Some learn to dive and bring out of the water burdens as heavy as a man.

PART XII.

Rogue's March.

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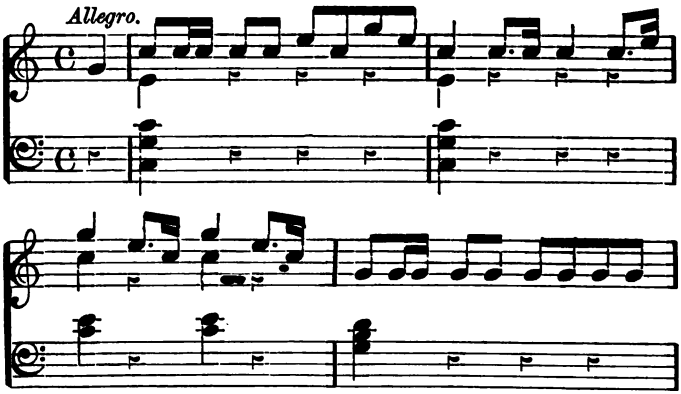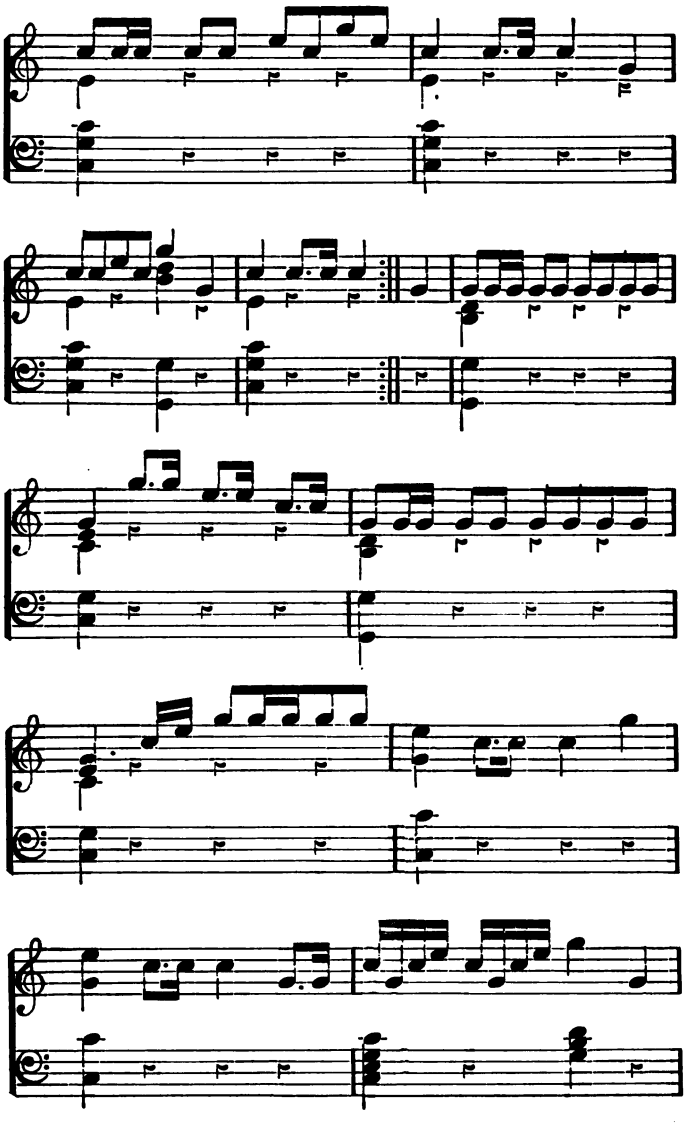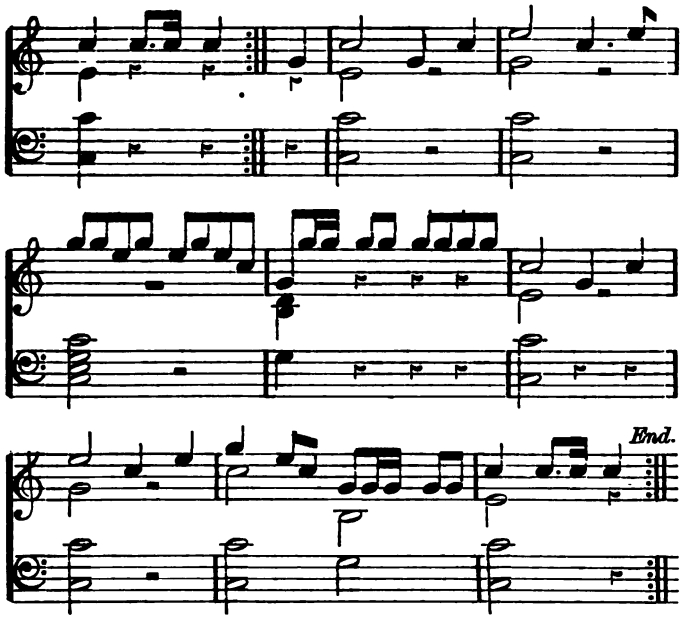
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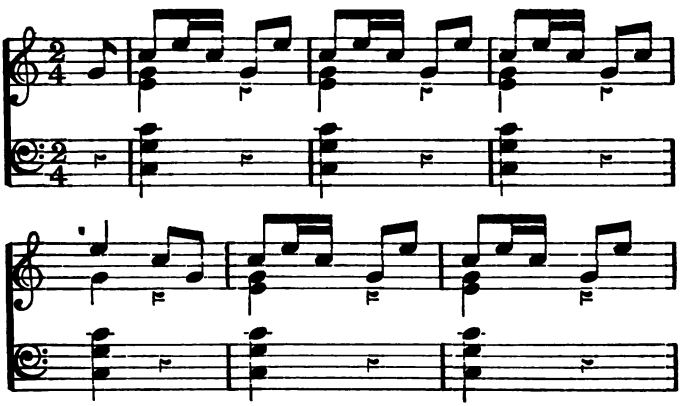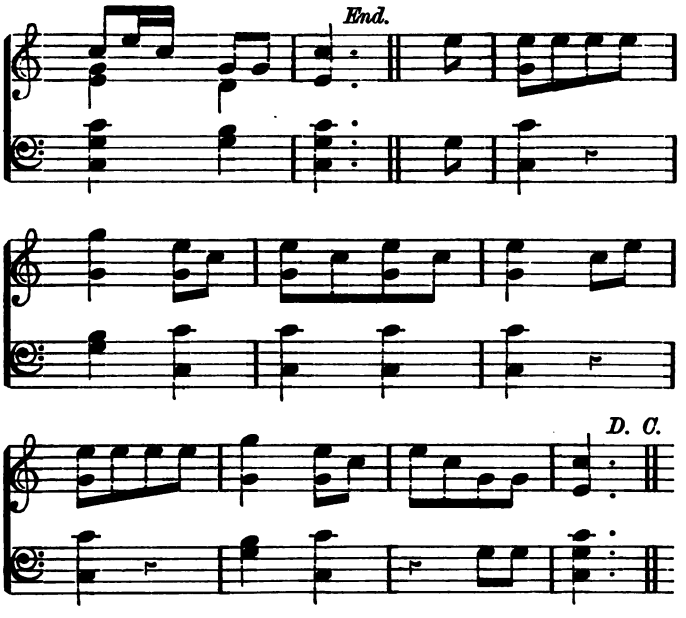
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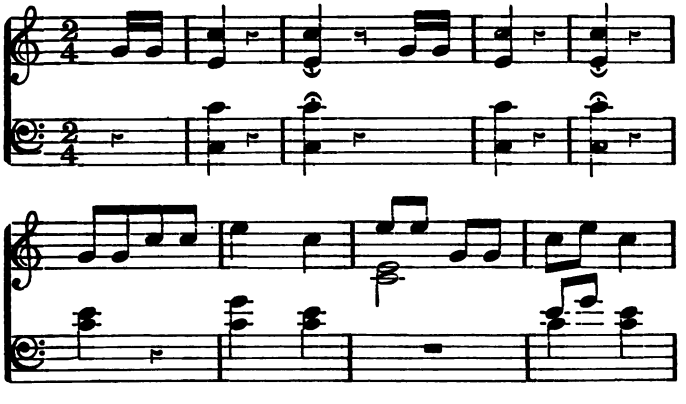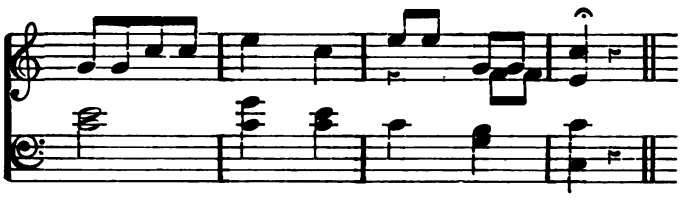
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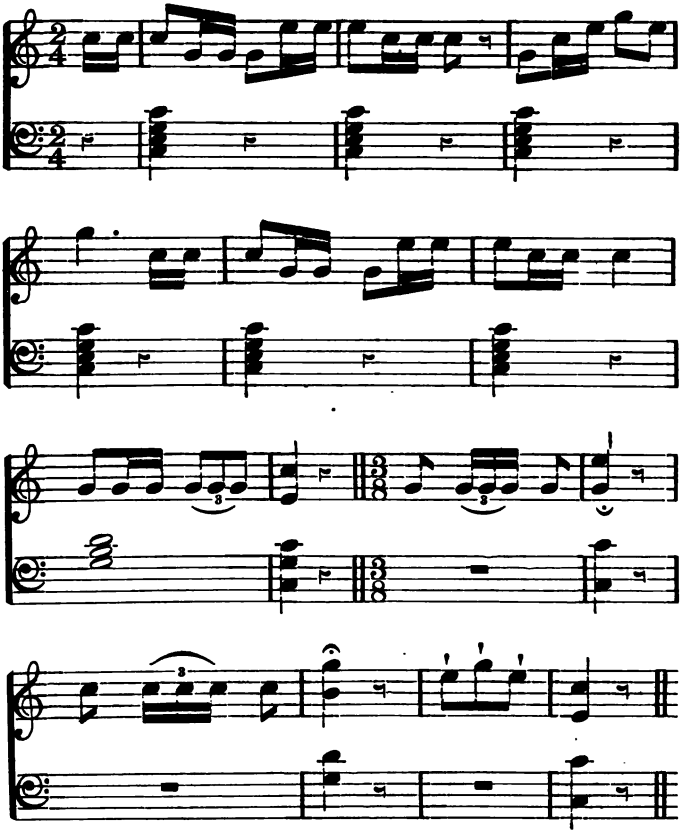
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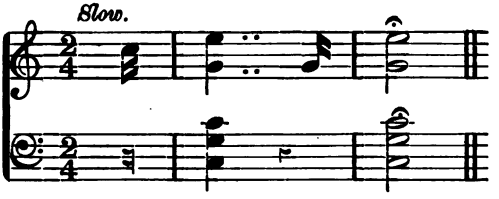
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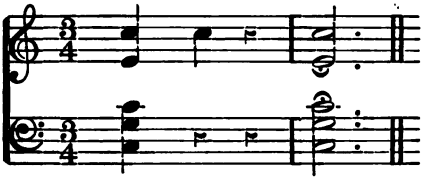
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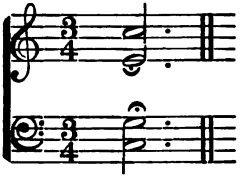
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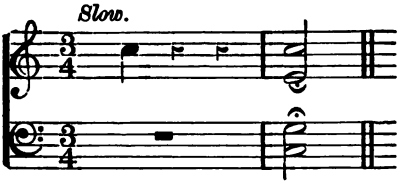
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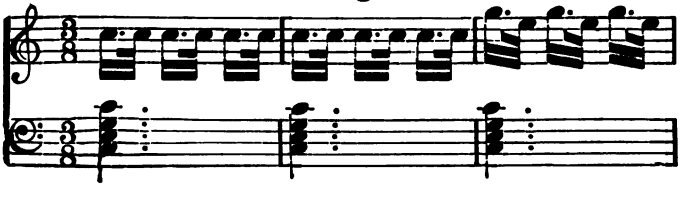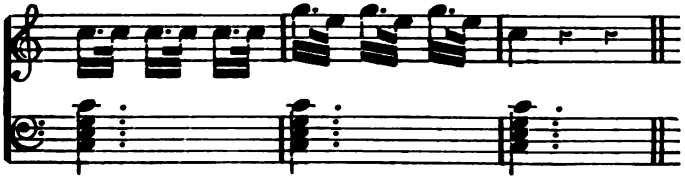

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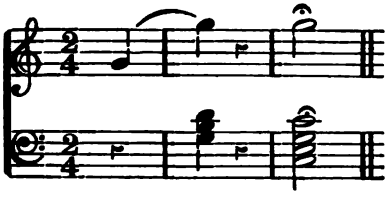
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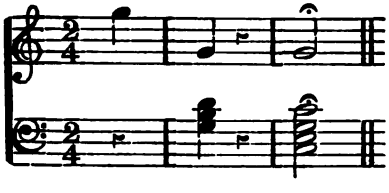
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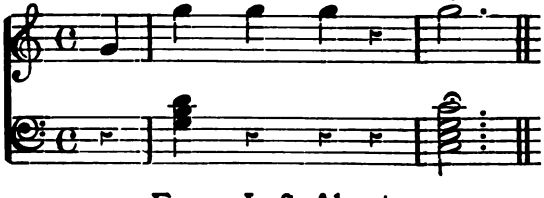

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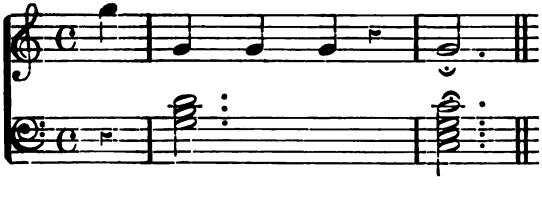
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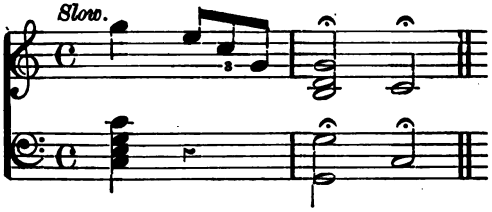
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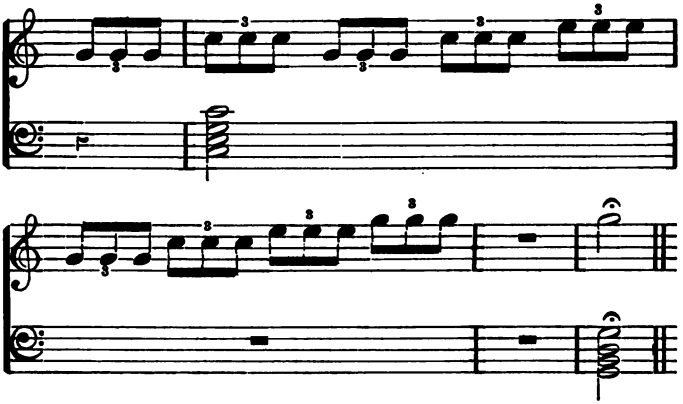
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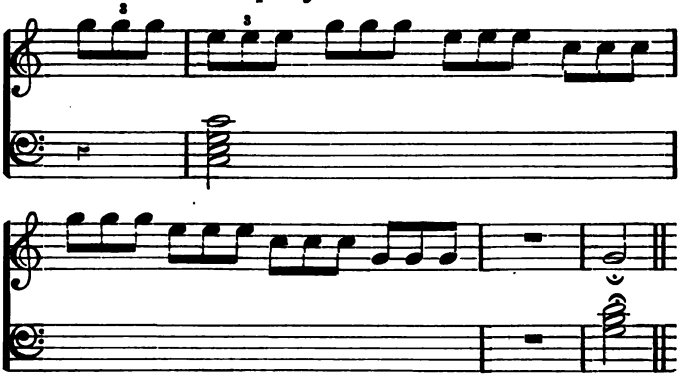
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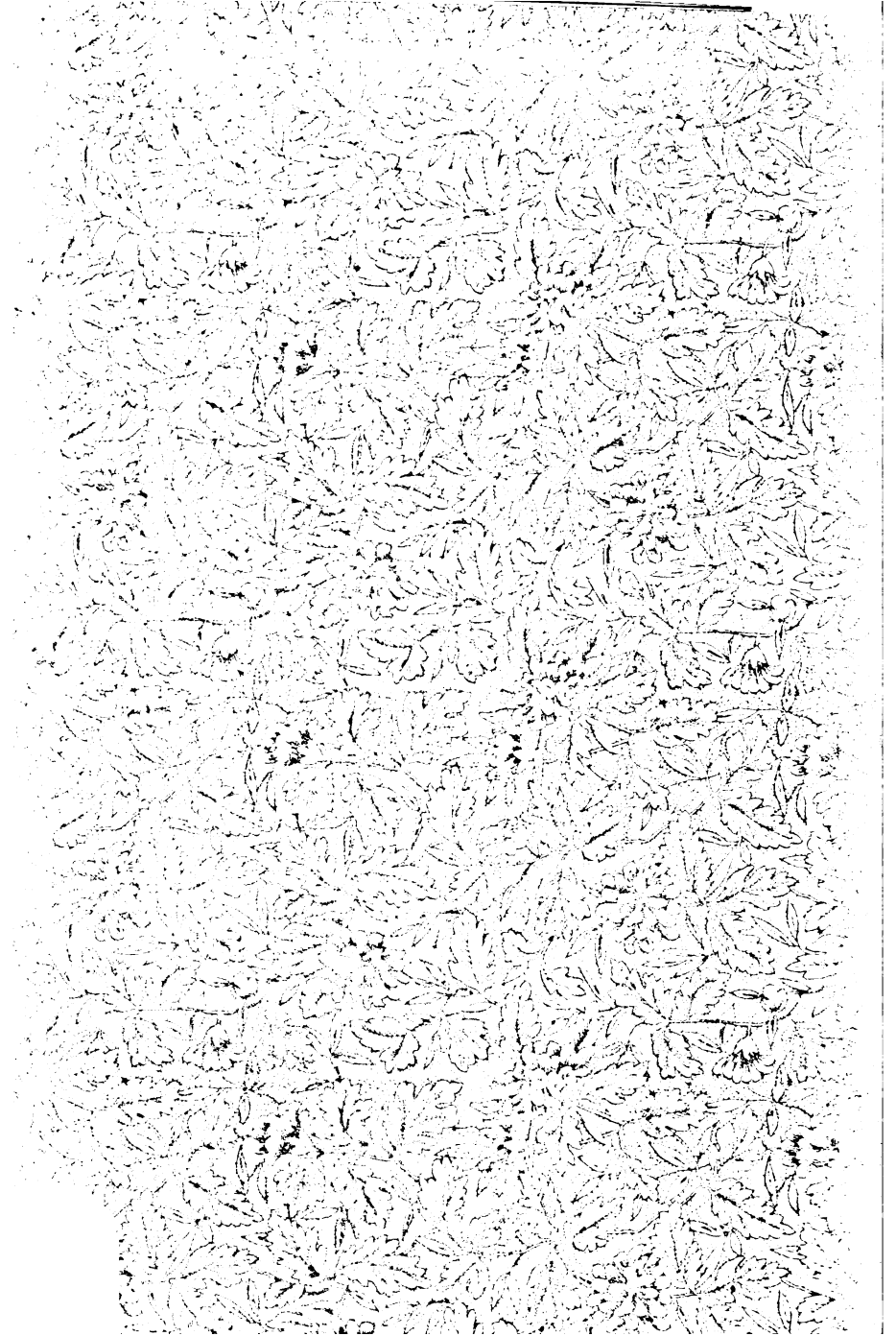

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